

Access DB# 133764**SEARCH REQUEST FORM****Scientific and Technical Information Center**

Requester's Full Name: Amarda Walke Examiner #: 75663 Date: 9/28/04  
Art Unit: 1752 Phone Number 301-272-1331 Serial Number: 10/716477  
Mail Box and Bldg/Room Location: REM 9004 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Bib Sheet Attached

Inventors (please provide full names): \_\_\_\_\_

Earliest Priority Filing Date: \_\_\_\_\_

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

*Please search for a resist composition of claim 1.  
Also search for crosslinker compd of claim 2. Thank you*

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**STAFF USE ONLY**


	Type of Search	Vendors and cost where applicable
Searcher: <u>EL</u>	NA Sequence (#) _____	STN <u>\$ 714.53</u>
Searcher Phone #: _____	AA Sequence (#) _____	(Dialog) _____
Searcher Location: _____	Structure (#) <u>(6)</u>	(Subsets) _____
Date Searcher Picked Up: _____	Bibliographic <u>(and)</u>	Questel/Orbit _____
Date Completed: <u>9-28-04</u>	Litigation <u>(and)</u>	Dr. Link _____
Searcher Prep & Review Time: <u>5</u>	Fulltext _____	Lexis/Nexis _____
Clerical Prep Time: _____	Patent Family _____	Sequence Systems _____
Online Time: <u>100</u>	Other _____	WWW/Internet _____
		Other (specify) _____

10/726477  
Classification: 430/270.100  
Status: 30 - DOCKETED NEW CASE - READY FOR EXAMINATION  
Title: COMPOSITION FOR A BOTTOM-LAYER RESIST

Examiner: WALKE, AMANDA  
Inventor: LEE, SUNG-HO, et al

GAU: 1752

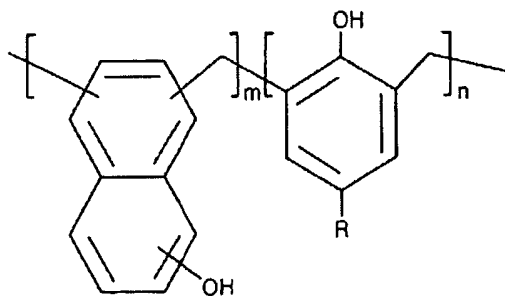
Bib Data report

<b>Application Title:</b> COMPOSITION FOR A BOTTOM-LAYER RESIST		
<b>Application Num:</b>  (in phx) <u>10726477</u>	<b>Filing Date:</b> 12/03/2003	
<b>Effective Filing:</b> 12/03/2003		
(Location History)      (Foreign/Continuity Data)		
<b>Status:</b> 30/DOCKETED NEW CASE - READY FOR EXAMINATION <b>Status Date:</b> 08/26/2004		
<b>Patent Number:</b> Not Issued	<b>Issue Date:</b> N/A	<b>Date of Abandonment:</b> N/A
<b>Confirmation Number:</b> 5894	<b>PALM Location:</b>	
<b>Examiner:</b> 75663    WALKE, AMANDA (Assignment Data) <b>Group Art Unit:</b> 1752		
<b>Class/Subclass:</b> 430/270.100		
<b>State or Country:</b> KOREA, REPUBLIC OF <b>Sheets/Drawing:</b> 2 <b>Total Claims:</b> 12		
<b>Independent Claims:</b> 2		
<b>▼ Inventors:</b>		
<b>Last name, First name:</b>	<b>City:</b>	<b>Country or State:</b>
<u>LEE, SUNG-HO</u>	HWASEONG-GUN	KOREA, REPUBLIC OF
<u>HONG, JIN</u>	HWASEONG-GUN	KOREA, REPUBLIC OF
<u>WOO, SANG-GYUN</u>	YONGIN-SI	KOREA, REPUBLIC OF
<b>Attorneys:</b> <u>ALL</u> <b>Attorney Docket No:</b> <u>8836-211 (IE12265-US)</u>		
<b>Interference No:</b>	<b>Lost Case:</b> No	<b>Unmatched Petition:</b> No <b>L&amp;R Code:</b> 1

BIB

**WHAT IS CLAIMED IS:**

1. A composition for a bottom-layer resist, comprising a polymer represented by the following formula:

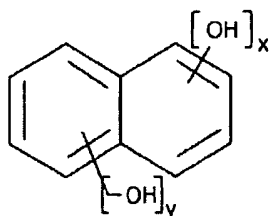


5

wherein R is hydrogen or a methyl group,  $m/(m+n)$  is about 0.5 to about 1.0 and  $n/(m+n)$  is 0 to about 0.5.

2. The composition as claimed in claim 1, further comprising a cross-linker represented by the following formula:

10



wherein x is an integer in the range of 1 to 3, and y is an integer in the range of 2 to 4.

3. The composition as claimed in claim 2, wherein the cross-linker comprises about 10 to about 40 wt.% based upon the total weight of the polymer.

5 4. The composition as claimed in claim 1, further comprising a thermal acid generator (TAG), wherein the TAG is about 1 to about 15 wt.% based on the total weight of the polymer.

10 5. The composition as claimed in claim 4, wherein the TAG is compound selected from a group consisting of aromatic sulfonic acid salts.

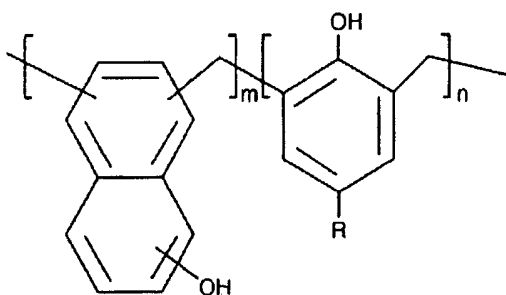
6. The composition as claimed in claim 4, wherein the TAG is ammonium toluene sulfonate.

15 7. The composition as claimed in claim 1, further comprising a photo acid generator (PAG), wherein the PAG is about 0.1 to about 5 wt.% based on the total weight of the polymer.

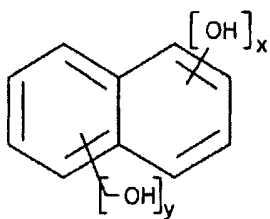
20 8. The composition as claimed in claim 7, wherein the PAG is a compound selected from a group consisting of triarylsulfonium salts, diaryliodonium salts, and sulfonate.

9. A patterning method for a semiconductor device comprising:

(a) forming a first resist layer by coating a resist composition on a layer to be etched on a semiconductor substrate, wherein the resist composition is represented by the following formula:



wherein R is hydrogen or a methyl group,  $m/(m+n)$  is about 0.5 to about 1.0 and  $n/(m+n)$  is 0 to about 0.5, and wherein the resist composition further includes a temperature acid generator (TAG), and a crosslinker agent represented by the following



wherein x is an integer in the range of 1 to 3, and y is an integer in the range of 2 to 4;

(b) baking the first resist layer, thereby forming a bottom resist layer;

(c) forming a second resist layer containing silicon on the bottom resist layer;

(d) pre-baking the second resist layer;

(e) exposing the second resist layer to light;

5 (f) performing a post-exposure baking (PEB) on the second resist layer;

(g) forming a top layer resist pattern by developing the exposed second resist layer;

10 (h) forming a bottom resist layer pattern by etching the bottom resist layer using the top layer resist pattern as an etching mask; and

(i) etching the layer to be etched using the bottom resist layer pattern as an etching mask.

10. The patterning method of claim 9, wherein in step (e), ArF or F<sub>2</sub> eximer laser is used for the exposing.

11. The patterning method of claim 9, wherein the TAG is compound selected from a group consisting of aromatic sulfonic acid salts.

20

12. The patterning method of claim 9, wherein the TAG is ammonium toluene sulfonate.

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FILE 'REGISTRY' ENTERED AT 15:33:07 ON 28 SEP 2004  
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FILE 'HCAPLUS' ENTERED AT 14:45:53 ON 28 SEP 2004

L1 196701 S LEE ?/AU  
L2 27008 S HONG ?/AU  
L3 6745 S WOO ?/AU  
L4 77 S L1 AND L2 AND L3  
L5 33645 S LEE S?/AU  
L6 3675 S HONG J?/AU  
L7 1376 S WOO S?/AU  
L8 3 S L5 AND L6 AND L7  
SEL L8 1 RN

FILE 'REGISTRY' ENTERED AT 14:47:56 ON 28 SEP 2004

L9 3 S E1-E3  
SEL L9 1 RN  
L10 1 S E4  
SEL L9 2 RN  
L11 1 S E5

FILE 'HCA' ENTERED AT 14:51:54 ON 28 SEP 2004

L12 2 S L10  
L13 63 S L11  
L14 151830 S RESIST OR RESISTS OR PHOTORESIST? OR MASK? OR PHOTOMASK  
L15 2 S L12 AND L13  
L16 11 S L13 AND L14

FILE 'LREGISTRY' ENTERED AT 14:53:25 ON 28 SEP 2004

L17 STR  
L18 STR L17  
L19 STR  
L20 STR

FILE 'REGISTRY' ENTERED AT 14:57:50 ON 28 SEP 2004

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L22 39 S L18 AND L19 AND L20 AND L21  
L23 710 S L18 AND L19 AND L20 AND L21 FUL  
SAV L23 WAL477/A  
E PHENOLIC RESIN/PCT  
L24 15554 S E3

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 L28 162 S L26 AND L27

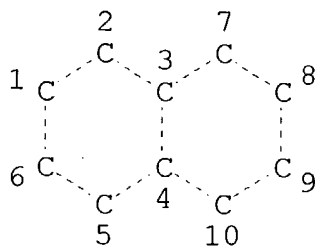
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 L33 SCR 1702 AND 1833  
 L34 0 S L29 AND L33 NOT L31 SSS SAM SUB=L23  
 L35 218 S L29 NOT L31 SSS FUL SUB=L23  
 SAV L35 WAL477A/A  
 L36 1 S L35 AND L28  
 L37 122 S L35 AND L26  
 L38 1 S L35 AND L27  
 L39 63 S L35 AND 4/ELC.SUB  
 L40 1 S L39 NOT (S OR P)/ELS  
 L41 88 S L35 AND M/ELS

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 L43 205 S L28  
 L44 14 S L43 AND L14  
 L45 24 S L12 OR L15 OR L16 OR L42 OR L44  
 L46 191 S L43 NOT L45  
 L47 24 S L45 AND (1900-2003/PRY OR 1900-2003/PY)  
 L48 191 S L46 AND (1900-2003/PRY OR 1900-2003/PY)

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=> d l35 que stat  
 L18 STR



OH 13

NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM



DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

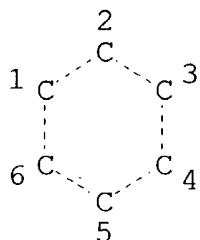
RSPEC I

NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE

L19 STR

OH 9



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L20 STR

CH2=O

1 2

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 2

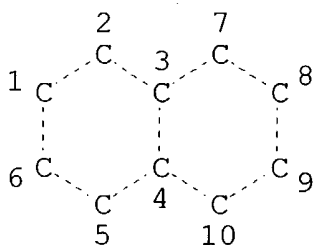
STEREO ATTRIBUTES: NONE

L21 SCR 2043

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L29 STR

HO 13



OH 16

OH 19

## NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 13

## STEREO ATTRIBUTES: NONE

L31 SCR 1312

L35 218 SEA FILE=REGISTRY SUB=L23 SSS FUL L29 NOT L31

100.0% PROCESSED 330 ITERATIONS

218 ANSWERS

SEARCH TIME: 00.00.01

=&gt; file hca

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L45 ANSWER 1 OF 24 HCA COPYRIGHT 2004 ACS on STN

141:164832 Composition for bottom-layer **resist**. Lee, Sung-Ho;

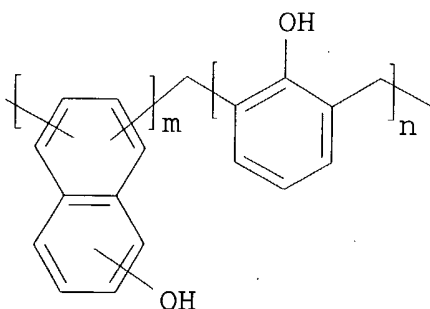
Hong, Jin; Woo, Sang-Gyun (Samsung Electronics Co., Inc., S. Korea).

U.S. Pat. Appl. Publ. US 2004146809 A1 20040729, 7 pp. (English).

CODEN: USXXCO. APPLICATION: US 2003-726477 20031203. PRIORITY: KR

2003-4805 20030124.

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I

AB A compn. for a bottom-layer **resist**, having superior anti-refractivity and dry-etch resistance for use in a bi-layer **resist** process employing a light source at a wavelength of 193 nm or below, is disclosed. The compn. for the bottom-layer **resist** contains a polymer represented by formula I (R = H, Me;  $m/(m+n) = 0.5-1.0$ ;  $n/(m+n) = 0-0.5$ ).

IT 25359-91-5P, 1-Hydroxynaphthalene-formaldehyde copolymer  
83016-92-6P, 1,3-Dihydroxynaphthalene-formaldehyde copolymer  
(compn. for bottom-layer **resist**)

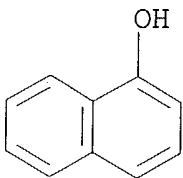
RN 25359-91-5 HCA

CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 90-15-3

CMF C10 H8 O



CM 2

CRN 50-00-0

CMF C H2 O

H<sub>2</sub>C=O

RN 83016-92-6 HCA

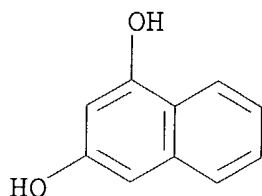
CN Formaldehyde, polymer with 1,3-naphthalenediol (9CI) (CA INDEX

NAME)

CM 1

CRN 132-86-5

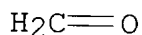
CMF C10 H8 O2



CM 2

CRN 50-00-0

CMF C H2 O



IC ICM G03C001-492

ICS G03C001-76; G03C005-00; H01L021-302; G03C001-494

NCL 430312000; 430314000; 430270100; 438736000

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST compn bottom layer bilayer **resist photoresist** photolithog

IT Photolithography

**Photoresists**(compn. for bottom-layer **resist**)IT **25359-91-5P**, 1-Hydroxynaphthalene-formaldehyde copolymer**83016-92-6P**, 1,3-Dihydroxynaphthalene-formaldehyde copolymer(compn. for bottom-layer **resist**)

IT 4124-42-9

(compn. for bottom-layer **resist**)

L45 ANSWER 2 OF 24 HCA COPYRIGHT 2004 ACS on STN

134:170828 Alkali-developable light-sensitive resin composition for printed circuit board. Ogura, Ichiro; Hirai, Miki; Arita, Kazuo (Dainippon Ink and Chemicals, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2001042525 A2 20010216, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-217610 19990730.

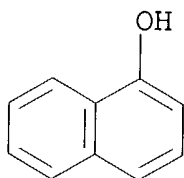
AB The compn. contains a photopolymerizable unsatd. monomer having a carboxylic group, an epoxy resin having condensed polyarom. rings,

and a photopolymn. initiator. The compn. provides **resists** of the high prodn. efficiency, the low prodn. cost, the good heat-resistance, and the high moisture-resistance.

IT **25359-91-5P**, 1-Naphthol-formaldehyde copolymer  
(epoxy resin having condensed polyarom. rings in alkali-developable light-sensitive resin compn.)  
RN 25359-91-5 HCA  
CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 90-15-3  
CMF C10 H8 O



CM 2

CRN 50-00-0  
CMF C H2 O

$\text{H}_2\text{C}=\text{O}$

IC ICM G03F007-032  
ICS C08L063-10; H05K003-28; H05K003-46  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 76  
IT **Photoresists**  
Printed circuit boards  
(alkali-developable light-sensitive resin compn. for printed circuit board prodn.)  
IT **25359-91-5P**, 1-Naphthol-formaldehyde copolymer  
104934-39-6P, 1,6-Dihydroxynaphthalene-(±)-Epichlorohydrin copolymer 106679-63-4P, 1-Naphthol-formaldehyde-(±)-Epichlorohydrin copolymer 107530-04-1P, 1,6-Dihydroxynaphthalene-formaldehyde copolymer 124303-57-7P, 2,7-Dihydroxynaphthalene-formaldehyde copolymer 260553-43-3P, 2,7-Dihydroxynaphthalene-epichlorohydrin copolymer 325829-73-0P, 2-Naphthol-1,6-dihydroxynaphthalene-formaldehyde copolymer 325829-74-1P

325829-75-2P, Epiclon N 690-1,2,3,6-tetrahydrophthalic anhydride copolymer

(epoxy resin having condensed polyarom. rings in alkali-developable light-sensitive resin compn.)

L45 ANSWER 3 OF 24 HCA COPYRIGHT 2004 ACS on STN

132:71367 Positive photoimaging composition for photofabrication.

Kawabe, Yasumasa; Sato, Kenichiro; Aoai, Toshiaki (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP 967522 A1 19991229, 57 pp.

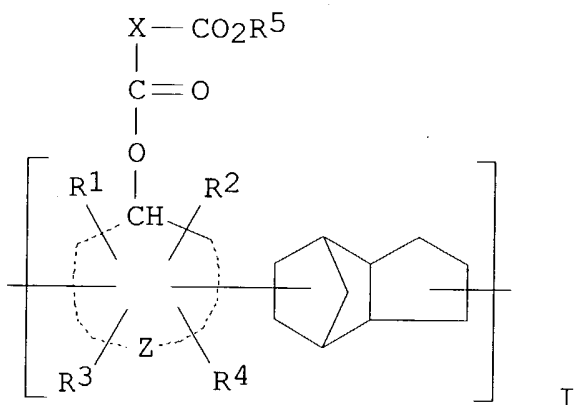
DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN:

EPXXDW. APPLICATION: EP 1999-111963 19990625. PRIORITY: JP

1998-180868 19980626; JP 1998-186271 19980701; JP 1998-186272

19980701; JP 1998-186273 19980701.

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AB A UV-sensitive pos. photoimaging compn. for photofabrication comprises a photoacid generator, a nitrogen-contg. basic compd., a polymer having the group represented by the formula I (R1-4 = H, OH, carboxyl, alkyl, alkoxy, or cycloalkyl, provided that either R1 and R3 or R2 and R4 may be bonded to each other to form a ring; X = a bivalent org. group having 2-20 carbon atoms; R5 = H, carboxyl, alkyl, cycloalkyl, or such a group that the -CO2R5 functions as a group which decomp. by the action of an acid; Z = a group of atoms which form a cyclohexane or decalin ring in combination with carbon atoms), and at least of a fluorine-contg. surfactant and a silicone surfactant.

IT 253270-57-4D, hydrogenated, reaction products with dicarboxylic anhydride and alc.

(chem. amplified UV-sensitive pos. photoresists contg.)

RN 253270-57-4 HCA

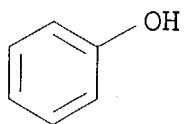
CN Formaldehyde, polymer with 1-naphthalenol, phenol and

3a,4,7,7a-tetrahydro-4,7-methano-1H-indene (9CI) (CA INDEX NAME)

CM 1

CRN 108-95-2

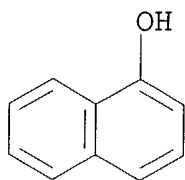
CMF C6 H6 O



CM 2

CRN 90-15-3

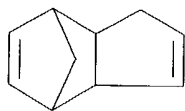
CMF C10 H8 O



CM 3

CRN 77-73-6

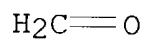
CMF C10 H12



CM 4

CRN 50-00-0

CMF C H2 O



- IC ICM G03F007-004  
ICS G03F007-039
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST chem amplified pos **photoresist** vinylnorbornene copolymer
- IT Positive **photoresists**  
(UV, chem. amplified; contg. vinylnorbornene copolymers)
- IT Integrated circuits  
(chem. amplified UV-sensitive pos. **photoresists** contg. vinylnorbornene copolymers for fabrication of)
- IT 108-30-5D, reaction products with alc. and hydrogenated diene-phenol, diene-phenol-aldehyde, diene-naphthol, or diene-naphthol-aldehyde copolymers or with alc. and hydrogenated reaction products between phenol and polybutadiene 6004-79-1D, reaction products with alc. and hydrogenated diene-phenol, diene-phenol-aldehyde, diene-naphthol, or diene-naphthol-aldehyde copolymers or with alc. and hydrogenated reaction products between phenol and polybutadiene 9003-17-2D, reaction products with phenol, hydrogenated, reaction products with dicarboxylic anhydride and alc. 29862-25-7D, hydrogenated, reaction products with dicarboxylic anhydride and alc. 149829-96-9D, hydrogenated, reaction products with dicarboxylic anhydride and alc. 149829-97-0D, hydrogenated, reaction products with dicarboxylic anhydride and alc. **253270-57-4D**, hydrogenated, reaction products with dicarboxylic anhydride and alc. 253270-58-5D, hydrogenated, reaction products with dicarboxylic anhydride and alc.  
(chem. amplified UV-sensitive pos. **photoresists** contg.)
- IT 280-57-9, 1,4-Diazabicyclo[2.2.2]octane 3001-72-7, 1,5-Diazabicyclo[4.3.0]-5-nonene 6674-22-2, 1,8-Diazabicyclo[5.4.0]-7-undecene 66003-78-9, Triphenylsulfonium triflate 137462-24-9, Megafac F176 216679-67-3, Megafac R08  
(chem. amplified UV-sensitive pos. **photoresists** contg. vinylnorbornene copolymers and)
- IT 75-65-0DP, reaction products with dicarboxylic anhydride and hydrogenated diene-phenol, diene-phenol-aldehyde, diene-naphthol, or diene-naphthol-aldehyde copolymers or with carboxylic anhydride and hydrogenated reaction products between phenol and polybutadiene 85-42-7DP, reaction products with alc. and hydrogenated diene-phenol, diene-phenol-aldehyde, diene-naphthol, or diene-naphthol-aldehyde copolymers or with alc. and hydrogenated reaction products between phenol and polybutadiene 694-54-2DP, reaction products with dicarboxylic anhydride and hydrogenated diene-phenol, diene-phenol-aldehyde, diene-naphthol, or diene-naphthol-aldehyde copolymers or with carboxylic anhydride and hydrogenated reaction products between phenol and polybutadiene 30420-31-6DP, hydrogenated, reaction products with dicarboxylic anhydride and alc. 148273-07-8DP, hydrogenated, reaction products with dicarboxylic anhydride and alc.

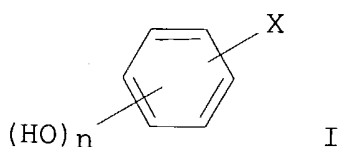


(synthesis and use in chem. amplified UV-sensitive pos.  
photoresists)

L45 ANSWER 4 OF 24 HCA COPYRIGHT 2004 ACS on STN

131:52033 Photosensitive compositions containing alkali-soluble novolak resin binders. Hattori, Ryoji (Konica Co., Japan). Jpn. Kokai Tokkyo Koho JP 11143067 A2 19990528 Heisei, 48 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-317697 19971104.

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AB The compns. contain (A) alkali-sol. polymers, (B) IR-absorbing dyes, (C) acid generators, and (D) compds. having decomposable or crosslinkable groups by acids. The polymers are (a) copolymers of aldehydes or ketones, and phenol components contg. phenols 0-50, m-alkylphenols 20-80, and p-alkylphenols 20-80 mol%, (b) copolymers of phenols contg. I ( $n \geq 1$ ; X = C1-9 alkyl, alkyl ester) and aldehydes or ketones, (c) mixts. of alkali-sol. novolaks and b, or (d) naphthol novolaks. The compns. show high chem. resistance, good development latitude, and high sensitivity.

IT 25359-91-5P, Formaldehyde- $\alpha$ -naphthol copolymer  
(photosensitive compns. contg. alkali-sol. novolak resin binders with good chem. resistance)

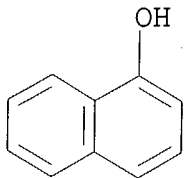
RN 25359-91-5 HCA

CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 90-15-3

CMF C10 H8 O



CM 2

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$ 

IC ICM G03F007-023

ICS G03F007-038; G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38ST **photoresist** alkali soluble novolak chem resistance;  
phenolic resin alkali soluble **photoresist**; naphthol  
novolak binder alkali soluble **photoresist**

IT Binders

**Photoresists**(photosensitive compns. contg. alkali-sol. novolak resin binders  
with good chem. resistance)IT **25359-91-5P**, Formaldehyde- $\alpha$ -naphthol copolymer

35464-74-5P 68778-33-6P 72099-96-8P 220103-57-1P

226949-27-5P 226949-28-6P 226949-29-7P 226949-30-0P

226949-31-1P 226949-32-2P 226949-33-3P

(photosensitive compns. contg. alkali-sol. novolak resin binders  
with good chem. resistance)

L45 ANSWER 5 OF 24 HCA COPYRIGHT 2004 ACS on STN

128:116385 Polyfunctional aromatic vinyl ethers, their quick-curing  
compositions, and their cured products. Noji, Minoru; Okihara,  
Rieko; Uchida, Makoto (Nippon Kayaku Co., Ltd., Japan). Jpn. Kokai  
Tokkyo Koho JP 10001540 A2 19980106 Heisei, 8 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 1996-177306 19960618.AB The vinyl ethers useful for inks, coatings, adhesives,  
**resists**, lithog., etc. are odorless and nonirritating to the  
skin and are prepd. by the vinyl etherification of the OH groups of  
novolak resins. Thus, 42 g 2-chloroethyl vinyl ether was dropwise  
added to a mixt. of 36.6 g  $\text{OHC}_6\text{H}_4\text{CH}_2\text{C}_6\text{H}_4\text{C}_6\text{H}_4\text{CH}_2\text{C}_6\text{H}_3\text{OHCH}_2\text{C}_6\text{H}_4\text{C}_6\text{H}_4\text{CH}_2\text{C}_6\text{H}_4\text{OH}$  and 12 g KOH in DMSO at 70°, heated at 75-80°  
for 5 h to obtain a polyfunctional vinyl ether, mixed (10 parts)  
with 0.1 part Adeka Optomer SP-170 (cationic photopolymer. initiator)  
and 3 parts MEK, coated, and cured.IT **201552-14-9DP**, reaction product with chloroethyl vinyl ether  
(quick-curing compns. contg. polyfunctional arom. vinyl ethers)

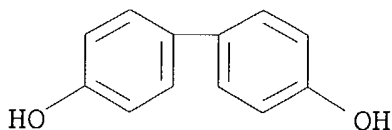
RN 201552-14-9 HCA

CN Formaldehyde, polymer with [1,1'-biphenyl]-4,4'-diol and  
1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 92-88-6

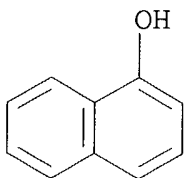
CMF C12 H10 O2



CM 2

CRN 90-15-3

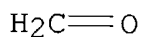
CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



IC ICM C08G065-32

CC 42-10 (Coatings, Inks, and Related Products)  
Section cross-reference(s): 74ST novolak vinyl ether photopolymn; coating ink adhesive polyfunctional  
vinyl ether; **resist** lithog polyfunctional arom vinyl  
ether; phenol naphthol vinyl ether manuf polymerizableIT 110-75-8DP, 2-Chloroethyl vinyl ether, reaction products with  
novolak resins 68859-34-7DP, BREN, reaction product with  
chloroethyl vinyl ether 128761-46-6DP, p-Dialdehydobenzene-phenol  
copomer, reaction product with chloroethyl vinyl ether  
137961-15-0DP, 4,4'-Biphenol-formaldehyde-phenol copolymer, reaction  
product with chloroethyl vinyl ether 139615-22-8DP, Kayahard NHN,  
reaction product with chloroethyl vinyl ether **201552-14-9DP**  
, reaction product with chloroethyl vinyl ether

(quick-curing compns. contg. polyfunctional arom. vinyl ethers)

L45 ANSWER 6 OF 24 HCA COPYRIGHT 2004 ACS on STN

127:101762 **Photoresist** composition with good resolution and reproducibility. Gokochi, Toru; Okino, Takeshi; Asakawa, Koji; Nakase, Makoto; Shinoda, Naomi (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 09127691 A2 19970516 Heisei, 29 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-221230 19960822. PRIORITY: JP 1995-223812 19950831.

AB The title compn. comprises a resin capable of being decompd. by an acid, acid generator, and a naphthol novolak compd. of mol. wt.  $\leq 2,000$ . The acid-decomposable resin is a copolymer of a compd. having an aliph. skeleton.

IT **25359-91-5P**, Formaldehyde- $\alpha$ -naphthol copolymer  
(prepd. for **photoresist** compn.)

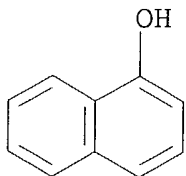
RN 25359-91-5 HCA

CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 90-15-3

CMF C10 H8 O



CM 2

CRN 50-00-0

CMF C H2 O

$\text{H}_2\text{C}=\text{O}$

IC ICM G03F007-023

ICS C08L061-10; G03F007-004; G03F007-033; G03F007-038; G03F007-039; H01L021-027

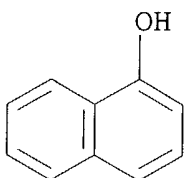
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST **photoresist** compn acid decomposable resin; naphthol novolak compd **photoresist** compn

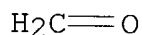
IT **Photoresists**

- (compn. comprising acid-decomposable resin, acid generator and naphthol novolak compd.)
- IT Phenolic resins, preparation  
(novolak, naphthol-based; prepd. for **photoresist** compn.)
- IT Phenolic resins, preparation  
(novolak, reaction products; prepd. as acid-decomposable compd. for **photoresist** compn.)
- IT 66003-78-9, Triphenyl sulfonium triflate 85342-62-7, NAI 105  
137867-61-9, NAT 105 192076-93-0, NDI 105 195057-83-1, NDS 105  
(acid generator for **photoresist** compn.)
- IT 2033-24-1D, Meldrumic acid, diazo compd. 51757-47-2  
(photosensitizer for **photoresist** compn.)
- IT 109-92-2DP, reaction products with pamoic acid 130-85-8DP, Pamoic acid, reaction products with Et vinyl ether 166976-09-6P  
191413-55-5P 191413-60-2P  
(prepd. as acid-decomposable compd. for **photoresist** compn.)
- IT 24979-70-2DP, Poly(p-hydroxystyrene), reaction product with di-t-Bu carbonate 25086-15-1P, Methacrylic acid-methyl methacrylate copolymer **25359-91-5P**, Formaldehyde- $\alpha$ -naphthol copolymer 34619-03-9DP, Di-tert-butyl carbonate, reaction product with poly(p-hydroxystyrene) 40114-03-2P, Butyral- $\alpha$ -naphthol copolymer 72145-62-1P, tert-Butyl methacrylate-methacrylic acid-methyl methacrylate copolymer 181017-30-1P, tert-Butyl methacrylate-menthyl methacrylate-methacrylic acid copolymer 191413-28-2P 191940-12-2P, 2-Adamantyl methacrylate-tert-butyl methacrylate-methacrylic acid copolymer 191940-13-3DP, desilylated 191940-14-4DP, desilylated 191940-15-5P, Glyoxylaldehyde- $\alpha$ -naphthol copolymer  
(prepd. for **photoresist** compn.)
- IT 81-61-8 83-56-7, 1,5-Dihydroxynaphthalene 109-92-2 130-85-8, Pamoic acid 602-09-5, [1,1'-Binaphthalene]-2,2'-diol 5292-43-3, tert-Butyl bromoacetate 34619-03-9, Di-tert-butyl carbonate  
(prepn. of acid-decomposable compd. for **photoresist** compn.)
- L45 ANSWER 7 OF 24 HCA COPYRIGHT 2004 ACS on STN  
127:73015 Alkali-developable **photoresist** with superior transparency to short wavelength light. Gokochi, Toru; Kihara, Naoko; Asakawa, Koji; Shinoda, Naomi; Nakase, Makoto; Okino, Takeshi (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 09120162 A2 19970506 Heisei, 34 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-213571 19960813. PRIORITY: JP 1995-210312 19950818.
- AB The title **photoresist** contains an acid group-bearing aliph. compd. with pK 7-11 in a 25° aq. soln. The aliph. compd. is a vinyl compd. copolymer, and the **photoresist** may contains a photo acid-generating agent and a dissolving

suppressor.  
 IT **25359-91-5P**, Formaldehyde- $\alpha$ -naphthol copolymer  
 (prepd. as dissolving suppressor for alk.-developable  
**photoresist**)  
 RN 25359-91-5 HCA  
 CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 90-15-3  
 CMF C10 H8 O



CM 2  
 CRN 50-00-0  
 CMF C H2 O



IC ICM G03F007-038  
 ICS G03F007-004; G03F007-033; G03F007-039; H01L021-027  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 ST alk developable **photoresist** vinyl copolymer; photo acid  
 generating agent **photoresist**; dissolving suppressor  
**photoresist**  
 IT **Photoresists**  
 (alk.-developable; contg. acid group-bearing vinyl copolymer and  
 photo acid generating agent and dissolving suppressor)  
 IT Epoxy resins, preparation  
 (phenolic, novolak; prepd. as dissolving suppressor for  
 alk.-developable **photoresist**)  
 IT Polyesters, preparation  
 (prepd. for alk.-developable **photoresist**)  
 IT **25359-91-5P**, Formaldehyde- $\alpha$ -naphthol copolymer  
 40114-03-2P, Butyral- $\alpha$ -naphthol copolymer 63170-44-5P  
 160457-08-9P 191413-55-5P 191413-60-2P 191413-63-5P, Glyoxylic  
 acid- $\alpha$ -naphthol copolymer

(prepd. as dissolving suppressor for alk.-developable  
**photoresist**)

IT 191413-23-7P 191413-25-9P 191413-28-2P 191413-30-6P  
191413-33-9P 191413-35-1P 191413-37-3P 191413-39-5P  
191413-42-0P

(prepd. for alk.-developable **photoresist**)

IT 51757-48-3P 191413-21-5P 191413-46-4P 191413-48-6P  
191413-52-2P

(prepd. for prepn. of vinyl copolymer in alk.-developable  
**photoresist**)

IT 81-61-8, Quinalizarin 83-56-7, 1,5-Dihydroxy naphthalene  
107-01-7, 2-Butene 130-85-8, Pamoic acid 602-09-5,  
[1,1'-Binaphthalene]-2,2'-diol 5292-43-3 34619-03-9,  
Di-tert-butyl carbonate

(prepn. of dissolving suppressor for alk.-developable  
**photoresist**)

IT 76-22-2, Camphor 541-16-2 700-58-3, 2-Adamantanone 930-60-9,  
4-Cyclopentene-1,3-dione 5122-82-7, 1-Adamantyl bromo methyl  
ketone 191413-44-2, 5-(2-Adamantylidene)-2,2-dimethyl-1,3-dioxane

(prepn. of monomer for vinyl copolymer in alk.-developable  
**photoresist**)

L45 ANSWER 8 OF 24 HCA COPYRIGHT 2004 ACS on STN

125:154388 **Photoresist** with a mixture of a photosensitive  
esterified resin and an o-naphthoquinone diazide compound. Zampini,  
Anthony; Trefonas, Peter, III (Shipley Company, L.L.C., USA). U.S.  
US 5529880 A 19960625, 14 pp. (English). CODEN: USXXAM.  
APPLICATION: US 1995-413081 19950329.

AB A **photoresist** that is a mixt. of the esterification  
product of an o-quinonediazide compd. and a novolak resin and a high  
mol. wt. phenol having from 2 to 5 phenolic groups and at least 4  
diazonaphthoquinone groups. The extent of esterification of the  
novolak resin is up to 20 percent of the hydroxyl groups and the  
degree of esterification of the phenol is at least 50 percent of the  
phenolic hydroxyl groups. The preferred novolak resins are the  
arom. novolak resin that are the condensation product of a reactive  
phenol with a bis(hydroxymethyl)phenol or an arom. aldehyde, each  
alone or in the presence of a reactive phenol.

IT 156361-31-8

(**photoresist** with a mixt. of a photosensitive  
esterified resin and an o-naphthoquinone diazide compd.)

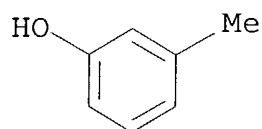
RN 156361-31-8 HCA

CN Formaldehyde, polymer with 2-hydroxy-5-methyl-1,3-benzenedimethanol,  
3-methylphenol and 1-naphthalenol, block (9CI) (CA INDEX NAME)

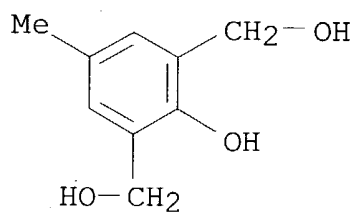
CM 1

CRN 108-39-4

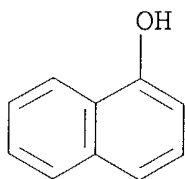
CMF C7 H8 O



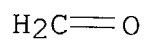
CM 2

CRN 91-04-3  
CMF C9 H12 O3

CM 3

CRN 90-15-3  
CMF C10 H8 O

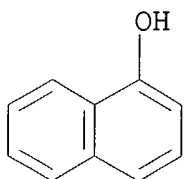
CM 4

CRN 50-00-0  
CMF C H2 OIC ICM G03F007-023  
ICS G03F007-30  
NCL 430190000



- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST naphthoquinone diazide compd **photoresist**; esterified resin **photoresist**
- IT Phenolic resins, processes  
(novolak, cresol-based, **photoresist** with a mixt. of a photosensitive esterified resin and an o-naphthoquinone diazide compd.)
- IT **Resists**  
(photo-, **photoresist** with a mixt. of a photosensitive esterified resin and an o-naphthoquinone diazide compd.)
- IT 29894-96-0 68400-73-7, Formaldehyde, polymer with 2-methylphenol, 3-methylphenol and 4-methylphenol 104077-62-5, o-Cresol-salicylaldehyde copolymer 121934-44-9, Benzaldehyde, 2-hydroxy-, polymer with 3-methylphenol 121934-45-0 126966-12-9 127061-90-9 129088-52-4 133793-34-7 138937-24-3, Benzaldehyde, 2-hydroxy-, polymer with 4-methylphenol 151372-76-8 151372-78-0 151372-79-1 151372-80-4 **156361-31-8** 156361-32-9 180266-33-5 180266-34-6 180266-35-7  
(**photoresist** with a mixt. of a photosensitive esterified resin and an o-naphthoquinone diazide compd.)
- L45 ANSWER 9 OF 24 HCA COPYRIGHT 2004 ACS on STN
- 121:241831 Positive-working **photoresist** composition useful for making integrated circuits. Shimizu, Naoto; Tachiki, Shigeo (Hitachi Chemical Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 06130660 A2 19940513 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-280395 19921020.
- AB The **photoresist** compn. contains a 1,2-naphthoquinonediazide compd. and an alkali-sol. novolak resin contg. 10-50 wt.% 2-4-nucleus substance (nucleus=arom. ring) comprising (1) a novolak resin contg. 10-30 wt.% 2-nucleus substance, prepd. by addn. condensation of phenols (A) with HCHO, and (2) a low-mol. wt. compd. contg. ≥50 wt.% 2-4-nucleus substance, prepd. by using phenols other than the phenols A and HCHO. The compn. shows high resoln. and good thermal resistance. Thus, a **photoresist** was prepd. by using 1,2-naphthoquinonediazido-5-sulfonic acid ester of 7-hydroxy-2-(2,4-dihydroxyphenyl)-2,4,4-trimethylchroman and a 80:20 wt. ratio mixt. of m-cresol-p-cresol-HCHO novolak resin (2-nucleus substance 14%) and 2,5-xylenol-HCHO condensate (2-4-nucleus substance 63%).
- IT **25359-91-5**, Formaldehyde-1-naphthol copolymer  
(**photoresist** contg.)
- RN 25359-91-5 HCA
- CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CRN 90-15-3  
CMF C10 H8 O



CM 2

CRN 50-00-0  
CMF C H2 O

H<sub>2</sub>C=O

IC ICM G03F007-022  
ICS G03F007-023; H01L021-027  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 76  
ST phenol formaldehyde novolak resin **photoresist**;  
naphthoquinonediazide compd **photoresist**  
IT Phenolic resins, uses  
(**photoresist** contg.)  
IT **Resists**  
(photo-, pos.-working, contg. novolak resin and  
naphthoquinonediazide deriv.)  
IT 25053-90-1, Formaldehyde-2,5-xylenol copolymer 25053-92-3,  
Formaldehyde-2,3,5-trimethyl phenol copolymer 25053-93-4,  
Formaldehyde-2,6-xylenol copolymer 25053-94-5,  
Formaldehyde-2,4-xylenol copolymer 25086-35-5,  
Formaldehyde-3,5-xylenol copolymer 25104-16-9,  
Formaldehyde-pyrogallol copolymer 25213-44-9, Catechol-  
formaldehyde copolymer 25302-12-9, Formaldehyde-2-naphthol  
copolymer **25359-91-5**, Formaldehyde-1-naphthol copolymer  
26353-95-7, Formaldehyde-hydroquinone copolymer 27029-76-1,  
m-Cresol-p-cresol-formaldehyde copolymer 140698-96-0,  
7-Hydroxy-2-(2,4-dihydroxyphenyl)-2,4,4-trimethylchroman ester with  
1,2-naphthoquinonediazidediazide-5-sulfonic acid  
(**photoresist** contg.)

L45 ANSWER 10 OF 24 HCA COPYRIGHT 2004 ACS on STN  
121:69557 **Photoresist** composition containing block copolymer

resin and positive-working o-quinone diazide or negative-working azide sensitizer compound. Zampini, Anthony (Shipley Co. Inc., USA). U.S. US 5238776 A 19930824, 6 pp. Cont.-in-part of U.S. Ser. No. 411,670. (English). CODEN: USXXAM. APPLICATION: US 1991-661125 19910227. PRIORITY: US 1986-2364 19861223; US 1987-108192 19871013; US 1989-411670 19890925.

AB A **photoresist** compn. is described comprising a light sensitive component and an alternating copolymer resin formed by condensing a preformed bishydroxymethylated compd. and a reactive phenol, in the absence of an aldehyde. Addnl. useful resins may be formed by further reacting the alternating copolymer with a 2nd reactive phenol in the presence of an aldehyde to form substantially block copolymers. The use of these resins in **photoresist** formulations leads to improved thermal properties, etch resistance and photo-speed.

IT **156361-31-8**  
(**photoresist** compn. contg.)

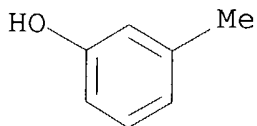
RN 156361-31-8 HCA

CN Formaldehyde, polymer with 2-hydroxy-5-methyl-1,3-benzenedimethanol, 3-methylphenol and 1-naphthalenol, block (9CI) (CA INDEX NAME)

CM 1

CRN 108-39-4

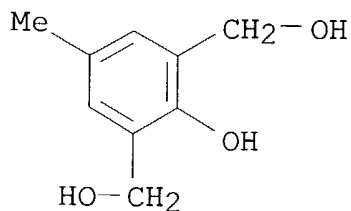
CMF C7 H8 O



CM 2

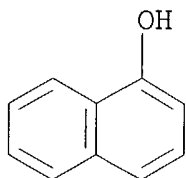
CRN 91-04-3

CMF C9 H12 O3



CM 3

CRN 90-15-3  
CMF C10 H8 O



CM 4

CRN 50-00-0  
CMF C H2 O

H<sub>2</sub>C=O

IC ICM G03F007-012  
ICS G03F007-023  
NCL 430192000  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST **photoresist** block copolymer sensitizer  
IT Phenolic resins, uses  
(**photoresist** compn. contg.)  
IT **Resists**  
(photo-, block copolymer and sensitizer for improved thermal properties of)  
IT 68510-93-0 127061-90-9 **156361-31-8** 156361-32-9  
(**photoresist** compn. contg.)

L45 ANSWER 11 OF 24 HCA COPYRIGHT 2004 ACS on STN  
121:69530 Positive-working **photoresist** composition. Shimizu, Naoto; Matsui, Megumi; Tachiki, Shigeo (Hitachi Chemical Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 05142769 A2 19930611 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-302215 19911119.

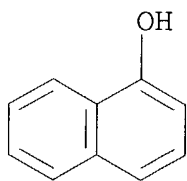
AB In a pos.-working **photoresist** compn. comprising an alk.-sol. novolak resin and a 1,2-naphthoquinonediazide compd., the alk.-sol. novolak resin is made up of a novolak resin obtained via addn. condensation reaction of a phenol deriv. with formaldehyde and a low-mol.-wt. compd. which is obtained via addn. condensation reaction of a phenol deriv. (different from previous phenol deriv.) with formaldehyde and contains a bi- to tetra-nuclide compd.

≥50%, in which the alk.-sol. novolak resin contains a binuclide compd. 10-50%.

IT **25359-91-5P**, Formaldehyde-1-naphthol copolymer  
(prepn. and use of, in pos.-working **photoresist**  
compns.)  
RN 25359-91-5 HCA  
CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 90-15-3  
CMF C10 H8 O



CM 2

CRN 50-00-0  
CMF C H2 O

H<sub>2</sub>C=O

IC ICM G03F007-022  
ICS G03F007-023; H01L021-027  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST pos working **photoresist** compn; novolak resin  
**photoresist** compn  
IT Phenolic resins, uses  
(novolak, alk.-sol., pos.-working **photoresist** compns.  
contg.)  
IT **Resists**  
(photo-, pos.-working, contg. alk.-sol. novolak resins and naphthoquinonediazide compds.)  
IT 25053-90-1P 25053-92-3P, Formaldehyde-2,3,5-trimethylphenol copolymer 25053-93-4P, Formaldehyde-2,6-xilenol copolymer 25053-94-5P 25086-35-5P, Formaldehyde-3,5-xilenol copolymer 25104-16-9P, Formaldehyde-pyrogallol copolymer 25213-44-9P, Catechol-formaldehyde copolymer 25302-12-9P, Formaldehyde-2-naphthol copolymer **25359-91-5P**, Formaldehyde-1-naphthol

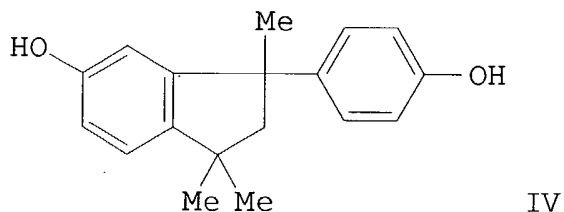
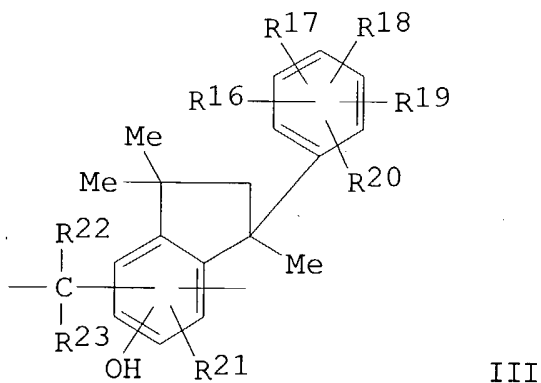
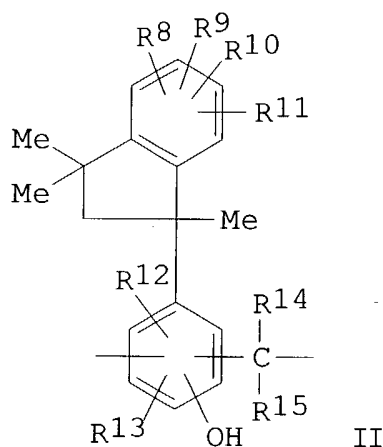
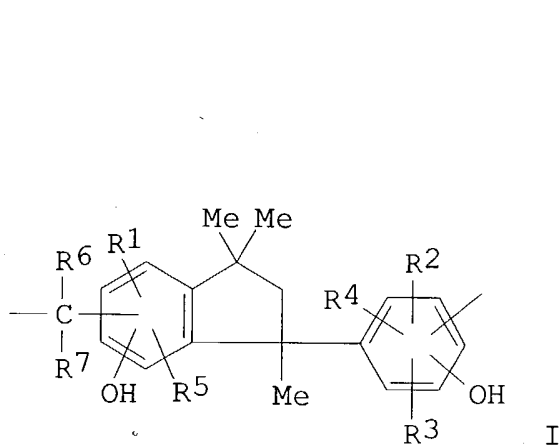
copolymer 27029-76-1P, m-Cresol-p-cresol-formaldehyde copolymer  
155219-04-8P

(prepn. and use of, in pos.-working **photoresist**  
compsns.)

L45 ANSWER 12 OF 24 HCA COPYRIGHT 2004 ACS on STN

120:77957 Novolak resins and manufacture thereof and negative-type  
**photoresist** compositions using the same. Ueda, Juji;  
Takeyama, Naomiki; Ueki, Hiromi; Kusumoto, Takehiro (Sumitomo  
Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 05178951 A2  
19930720 Heisei, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION:  
JP 1992-48437 19920305. PRIORITY: JP 1991-249071 19910927.

GI



AB The heat-resistant transparent title resins have mol. wt.  
2000-50,000 and repeating unit(s) chosen from I, II, and III [R1-5,

R8-13, R16-21 = H, halogen, (un)substituted alkyl, alkenyl, acetyl;  
R6, R7, R14, R15, R22, R23 = H, (un)substituted alkyl, benzyl, Ph].  
A mixt. of IV 53.6, Et Cellosolve acetate 50.4, and 5% oxalic acid  
6.08 g at 80° was treated dropwise with 3.0 g 37% formalin,  
stirred at 110° for 10 h, cooled below 60°, and  
stirred with 100 mL water to give novolak with Mw 5500 and glass  
transition temp. 242.5°.

IT 152451-10-0P

(manuf. of, heat-resistant, for neg.-type photoresists)

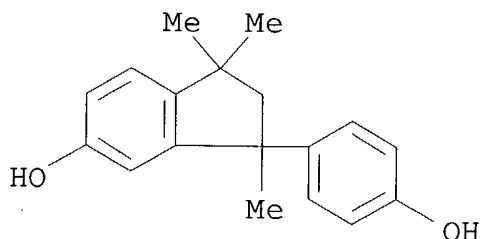
RN 152451-10-0 HCA

CN Formaldehyde, polymer with 2,3-dihydro-3-(4-hydroxyphenyl)-1,1,3-trimethyl-1H-inden-5-ol and 2-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 10527-11-4

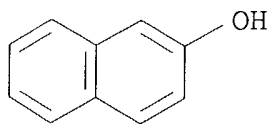
CMF C18 H20 O2



CM 2

CRN 135-19-3

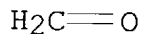
CMF C10 H8 O



CM 3

CRN 50-00-0

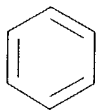
CMF C H2 O



IC ICM C08G008-00  
ICS C08G008-00; G03F007-004; G03F007-038; H01L021-027  
CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 74  
ST indanphenol novolak **photoresist** heat resistant  
IT Heat-resistant materials  
(indan ring-contg. novolaks, for neg.-type **photoresists**)  
IT Phenolic resins, preparation  
(indan group-contg., manuf. of, heat-resistant, for neg.-type **photoresists**)  
IT **Resists**  
(photo-, neg.-type, indan ring-contg. novolaks)  
IT 108388-54-1P 152236-92-5P 152236-93-6P 152236-94-7P  
152236-95-8P 152236-96-9P 152236-97-0P 152236-98-1P  
**152451-10-0P**  
(manuf. of, heat-resistant, for neg.-type **photoresists**)  
IT 152236-99-2 152237-00-8 152237-01-9 152237-02-0 152237-03-1  
152237-04-2 152237-05-3 152451-11-1  
(**photoresists**, neg.-type)  
  
L45 ANSWER 13 OF 24 HCA COPYRIGHT 2004 ACS on STN  
118:40409 Novolak design concept for high-performance positive  
**photoresists**. Hanabata, Makoto; Oi, Fumio; Furuta, Akihiro  
(Osaka Res. Lab., Sumitomo Chem. Co., Ltd., Osaka, 554, Japan).  
Polymer Engineering and Science, 32(20), 1494-9 (English) 1992.  
CODEN: PYESAZ. ISSN: 0032-3888.  
AB Novolak resins are optimized for high-performance pos.  
**photoresists**. Low-mol.-wt. novolak resins are the key  
components for improving resoln. capability, sensitivity, and heat  
resistance of pos. **photoresists**. Various phenolic compds.  
(monomers) and oligomers of m-cresol novolak resins are evaluated as  
the low-mol.-wt. components. Phenolic compds. that have moderate  
hydrophobicity and azo coupling capability with diazonaphthoquinone  
compds. greatly improve pos. **photoresist** performance.  
This is explained in terms of the Stone wall model for pos.  
**photoresist** development.  
IT **61509-33-9**  
(pos. **photoresists** contg., high-performance,  
optimization of)  
RN 61509-33-9 HCA  
CN Formaldehyde, polymer with methylphenol and 2-naphthalenol (9CI)  
(CA INDEX NAME)  
  
CM 1  
  
CRN 1319-77-3  
CMF C7 H8 O



CCI IDS



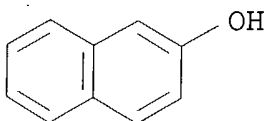
D1-OH

D1-Me

CM 2

CRN 135-19-3

CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$ 

CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 37, 74

ST novolak phenolic resin pos **photoresist**; optimization  
novolak resin pos **photoresist**

IT Phenolic resins, uses  
(novolak, cresol-based, pos. **photoresists** contg.,  
high-performance, optimization of)

IT **Resists**  
(photo-, pos.-working, cresol-based novolak resins for  
high-performance, optimization of)

IT **61509-33-9** 145426-26-2 145426-27-3 145426-29-5  
145426-30-8 145426-31-9 145426-42-2 145426-43-3 145426-44-4

145426-45-5 145459-70-7

(pos. **photoresists** contg., high-performance, optimization of)

L45 ANSWER 14 OF 24 HCA COPYRIGHT 2004 ACS on STN

111:184188 **Photoresist** method and compositions. Daniels, Brian Keneth; Maddox, David Charles; Templeton, Michael Karpovich; Trefonas, Peter, III; Woodbury, James Kelvin; Zampini, Anthony (Aspect Systems Corp., USA). Jpn. Kokai Tokkyo Koho JP 63220139 A2 19880913 Showa, 30 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-323030 19871222. PRIORITY: US 1986-2364 19861223; US 1987-108192 19871013.

AB The title method is described which is based upon multiple photolysis and uses the advantage of the unexposed photosensitive film thickness. The compn. used in this process comprises a novolak resin and a photoactive component with a diazoquinone group. The cresol-novolak resin may be prepd. by condensation of HCHO with a mixt. of cresol isomers consisting of  $\leq 30\%$  o-cresol, 25-46% m-cresol and 24-75% p-cresol. A **photoresist** compn. contg. this novolak and a photoactive component showed improved contrast, resoln., stability, transparency, and the like.

IT **121934-42-7P 121934-43-8P**  
(prepn. of, for **photoresist** compn.)

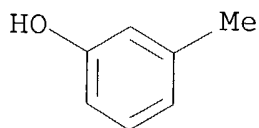
RN 121934-42-7 HCA

CN Formaldehyde, polymer with 2-hydroxy-5-methyl-1,3-benzenedimethanol, 3-methylphenol and 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 108-39-4

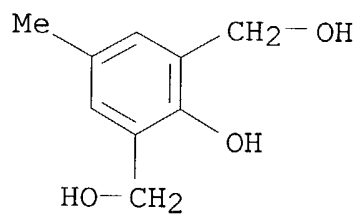
CMF C7 H8 O



CM 2

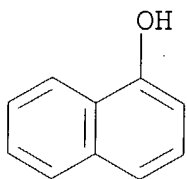
CRN 91-04-3

CMF C9 H12 O3



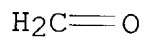
CM 3

CRN 90-15-3  
CMF C10 H8 O



CM 4

CRN 50-00-0  
CMF C H2 O

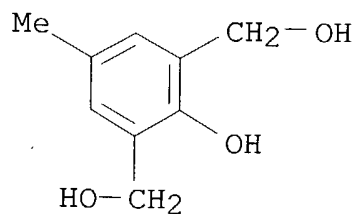


RN 121934-43-8 HCA

CN Formaldehyde, polymer with 2-hydroxy-5-methyl-1,3-benzenedimethanol  
and 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

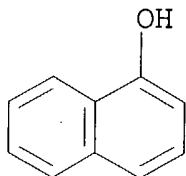
CRN 91-04-3  
CMF C9 H12 O3



CM 2

CRN 90-15-3

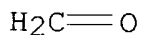
CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



- IC ICM G03C001-72  
ICS G03C001-72; G03C005-24
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST multiple photolysis **photoresist** method; cresol novolak resin **photoresist** compn; diazoquinone novolak **photoresist** compn
- IT Phenolic resins, uses and miscellaneous (novolak, multiple photolysis **photoresist** compn. contg.)
- IT **Resists**  
(photo-, multiple photolysis, contg. novolak resin and solvent and photoactive components)
- IT 68510-93-0DP, anhydrides with acetic acid 68510-93-0P  
110733-87-4P 122932-78-9P 122932-79-0P  
(prepn. of, as photoactive component for **photoresist** compn.)
- IT 68400-73-7P 121934-41-6P **121934-42-7P**  
**121934-43-8P** 121934-44-9P 121934-45-0P  
(prepn. of, for **photoresist** compn.)
- IT 86225-74-3 86225-77-6 121933-88-8 121984-02-9  
(reaction of, photoactive component from, for **photoresist** compn.)
- IT 67-63-0, 2-Propanol, uses and miscellaneous 67-64-1, Acetone, uses

and miscellaneous 71-41-0, n-Pentanol, uses and miscellaneous  
75-09-2, Methylene chloride, uses and miscellaneous 93-58-3,  
Methyl benzoate 96-48-0,  $\gamma$ -Butyrolactone 100-66-3,  
Anisole, uses and miscellaneous 102-52-3, Malonaldehyde  
tetramethylacetal 105-45-3 105-58-8, Diethyl carbonate  
107-21-1, Ethylene glycol, uses and miscellaneous 108-10-1, Methyl  
isobutyl ketone 108-90-7, Chlorobenzene, uses and miscellaneous  
109-21-7, Butyl butyrate 109-99-9, Tetrahydrofuran, uses and  
miscellaneous 110-43-0, 2-Heptanone 110-82-7, Cyclohexane, uses  
and miscellaneous 111-15-9 111-27-3, n-Hexanol, uses and  
miscellaneous 116-09-6, Acetol 120-92-3, Cyclopentanone  
123-42-2, Diacetone alcohol 123-86-4, n-Butyl acetate 123-91-1,  
1,4-Dioxane, uses and miscellaneous 141-78-6, Ethyl acetate, uses  
and miscellaneous 141-97-9 142-92-7, Hexyl acetate 617-35-6  
628-63-7, n-Amyl acetate 687-47-8 763-69-9, Ethyl-3-ethoxy-  
propionate 1330-20-7, Xylene, uses and miscellaneous 6342-56-9  
6942-58-1 84540-57-8, Propylene glycol monomethyl ether acetate  
121933-89-9

(solvent, **photoresist** compn. contg.)

L45 ANSWER 15 OF 24 HCA COPYRIGHT 2004 ACS on STN

110:125434 Positive-working radiation **resist** materials.

Hanawa, Kazumi; Nozue, Ikuo; Hosaka, Yukihiro; Harita, Yoshiyuki  
(Japan Synthetic Rubber Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho  
JP 62280737 A2 19871205 Showa, 10 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 1986-124311 19860529.

AB The title **resist** materials contain an alkali-sol. resin  
and a 1,2-quinoneazide component, which is a mixt. of  
1,2-quinoneazidesulfonate esters of tetrahydroxybenzophenone, of  
which 10-80% is the tetraester. The materials are easily  
developable, provide high resolu., and are esp. useful in prepn. of  
large-scale integrated circuits. Thus, a DMF soln. of a 1:3 (mol)  
mixt. of 1,2-naphthoquinone diazide-5-sulfonyl chloride and  
2,3,4,4'-tetrahydroxybenzophenone was mixed with Et<sub>3</sub>N, to obtain an  
ester mixt. contg. 63% tetraester. A Si wafer was coated with a  
mixt. of 20 parts of a m-cresol-p-cresol novolak resin and 5 parts  
of the ester mixt., prebaked, patternwise exposed to UV, developed  
with a Me<sub>4</sub>NOH soln., and dried to obtain a **resist** pattern  
resolving 0.8- $\mu$  lines.

IT 119429-32-2

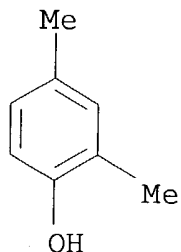
(novolak, pos.-working radiation **resists** contg. diazide  
esters and)

RN 119429-32-2 HCA

CN Formaldehyde, polymer with 2,4-dimethylphenol and 1-naphthalenol  
(9CI) (CA INDEX NAME)

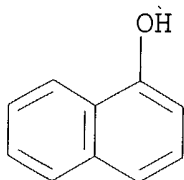
CM 1

CRN 105-67-9  
CMF C8 H10 O



CM 2

CRN 90-15-3  
CMF C10 H8 O



CM 3

CRN 50-00-0  
CMF C H2 O

$\text{H}_2\text{C}=\text{O}$

IC ICM G03C001-72  
ICS C08K005-28; C08L061-02; G03F007-08  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST **resist** radiation quinoneazide ester mixt  
IT Phenolic resins, uses and miscellaneous  
(pos.-working radiation **resists** contg. diazide esters and)  
IT **Resists**  
(photo-, pos.-working, mixed quinoneazide esters for)  
IT 25053-98-9, m-Cresol-formaldehyde-3,5-xyleneol copolymer  
27029-76-1, m-Cresol-p-cresol-formaldehyde copolymer 68400-73-7

**119429-32-2**

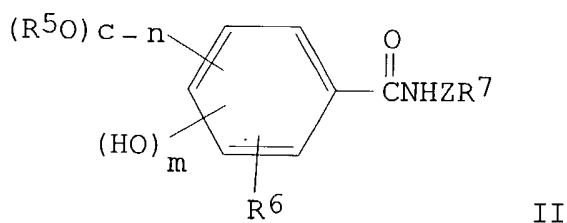
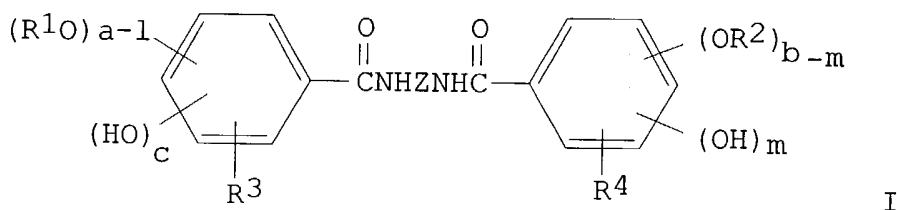
(novolak, pos.-working radiation **resists** contg. diazide esters and)

- IT 20546-03-6D, 1,2-Naphthoquinone diazide-5-sulfonic acid, esters with tetrahydroxybenzophenone 31127-54-5D, 2,3,4,4'-Tetrahydroxybenzophenone, esters with naphthoquinonediazidesulfonic acid  
(pos.-working radiation **resists** contg.)

L45 ANSWER 16 OF 24 HCA COPYRIGHT 2004 ACS on STN

109:14765 Positive-type radiation **resist** composition. Nozue, Ikuo; Hosaka, Yukihiro; Takatori, Masashige; Kurokawa, Mitsuo; Harita, Yoshiyuki (Japan Synthetic Rubber Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 62198852 A2 19870902 Showa, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-42443 19860227.

GI



- AB A pos.-type radiation-sensitive **resist** compn. contains an alkali-sol. resin 100 and 1,2-equinonediazides, I and/or II [a, b, c = 1-4; l, m, n = 0-3; (a-l), (b-m), (c-n) = 1-4; R1, R2 = 1,2-naphthoquinonediazido-4-sulfonyl, 1,2-naphthoquinoneidazido-5-sulfonyl, 1,2-benzoquinonediazido-4-sulfonyl; R3, R4, R6 = H, halo, alkyl, aryl, aralkyl, alkoxy, CN, NO2; R7 = H, halo, allyl, aryl, OH, alkoxy, CN, NO2; Z = alkylene, arylene, azaalkylene, azaarylene] 5-100 parts. The **resist** shows high sensitivity, high resoln., and high heat stability.

IT **105489-72-3**

(radiation-**resist** compns. contg.)

RN 105489-72-3 HCA

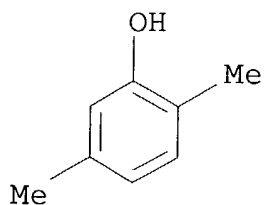
CN Formaldehyde, polymer with 2,5-dimethylphenol and 1-naphthalenol

(9CI) (CA INDEX NAME)

CM 1

CRN 95-87-4

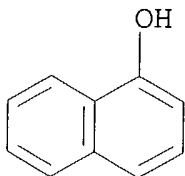
CMF C8 H10 O



CM 2

CRN 90-15-3

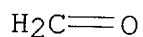
CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



IC ICM G03C001-72

ICS G03F007-08

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST radiation **resist** high resoln; heat stable radiation **resist**IT **Resists**

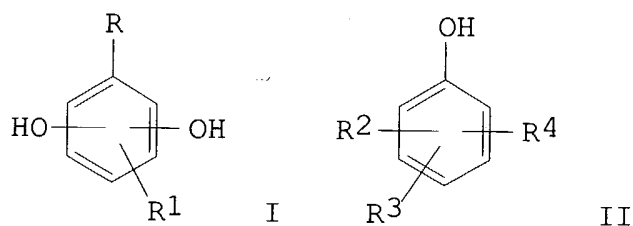
(radiation-sensitive, quinonediazido)

IT 25053-98-9 27029-76-1 **105489-72-3**(radiation-**resist** compns. contg.)



L45 ANSWER 17 OF 24 HCA COPYRIGHT 2004 ACS on STN  
 108:140771 Positive radiation-sensitive **resist** containing novolak resin and quinonediazide compound. Hosaka, Yoshihiro; Nozue, Ikuo; Takatori, Masashige; Harita, Yoshiyuki; Honda, Kiyoshi (Japan Synthetic Rubber Co., Ltd., Japan). Eur. Pat. Appl. EP 227487 A2 19870701, 23 pp. DESIGNATED STATES: R: BE, DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1986-310187 19861229. PRIORITY: JP 1985-296653 19851227; JP 1986-15333 19860127.

GI



AB A pos.-working radiation-sensitive **resist** is comprised of a 1,2-quinonediazide compd. and an alkali-sol. novolak resin produced by polycondensing a carbonyl compd. With phenol derivs. represented by the formulas I and II (R, R1 = OH, H, alkyl, aryl, aralkyl, alkenyl, halogen, alkoxy, alkoxy carbonyl, aroxy carbonyl, alkanoyloxy, aroyloxy, acyl, CN, NO<sub>2</sub>; R2, R3, R4 = H, alkyl, aryl, aralkyl, alkenyl, halogen, alkoxy, alkoxy carbonyl, aroxy carbonyl, alkanoyloxy, aroyloxy, acyl, CN, NO<sub>2</sub>) in a molar ratio of I/II of 1/99 to 100/0. The **resist** is sensitive to UV radiations, x-rays, electron beams, mol. beams,  $\gamma$ -rays, synchrotron radiations, and proton beams has excellent resoln., heat resistance and dry-etching resistance, and is esp. suitable for fabricating **photomasks** and integrated elec. circuits. Thus, resorcinol, acetaldehyde, and m-cresol were polycondensated in BuOH in the presence of oxalic acid to give an alkali-sol. novolak resin. The novolak resin and bis(2,4-dihydroxyphenyl)methane 1,2-naphthoquinonediazido-5-sulfonic acid tetraester were dissolved in Et cellosolve acetate, coated on a Si wafer having a Si oxide surface layer, dried, baked at 90° to give a **resist** film, imagewise exposed to UV radiation, (center wavelength 436 nm) through a **mask**, and developed in an aq. tetramethylammonium hydroxide soln. to give a **resist** pattern having a resoln. of 0.8  $\mu$ m, a heat-resistance temp. of 160°, and an excellent resistance to dry etching.

IT 105489-72-3

(pos.-working **photoresists** contg. quinonediazide compd.  
and, for fabrication of integrated circuits and  
**photomasks**)

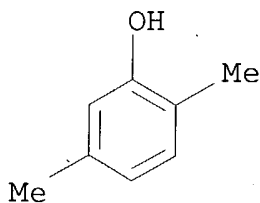
RN 105489-72-3 HCA

CN Formaldehyde, polymer with 2,5-dimethylphenol and 1-naphthalenol  
(9CI) (CA INDEX NAME)

CM 1

CRN 95-87-4

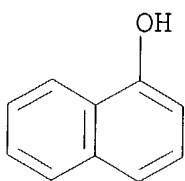
CMF C8 H10 O



CM 2

CRN 90-15-3

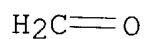
CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



IC ICM G03F007-08

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)ST pos **resist** quinonediazide novolak resin; **photomask**

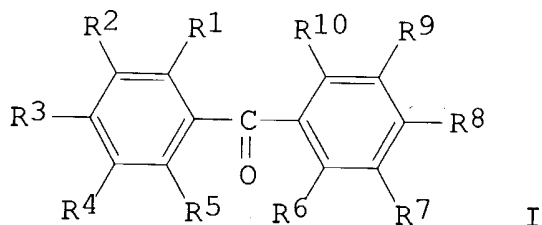
- quinonediazide novolak resin **resist**; elec circuit pos  
**resist** quinonediazide
- IT **Photomasks**  
(pos.-working **photoresists** contg. quinonediazide compd.  
and novolak resin for fabrication of)
- IT **Resists**  
(electron-beam, pos.-working, contg. quinonediazide compd. and  
novolak resin)
- IT Electric circuits  
(integrated, pos.-working **photoresists** contg.  
quinonediazide compd. and novolak resin for fabrication of)
- IT Phenolic resins, uses and miscellaneous  
(novolak, pos.-working **photoresists** contg.  
quinonediazide compd. and, for prepn. of integrated circuits and  
**photomasks**)
- IT **Resists**  
(photo-, pos.-working, contg. quinonediazide compd. and novolak  
resin)
- IT **Resists**  
(radiation-sensitive, pos.-working, contg. quinonediazide compd.  
and novolak resin)
- IT 75-59-2, Tetramethylammonium hydroxide  
(developing solns. contg., for pos.-working **photoresists**  
contg. quinonediazide compd. and novolak resin for fabrication of  
integrated circuits and **photomasks**)
- IT 100417-73-0 112284-38-5 112284-39-6 112284-40-9 112284-41-0  
112284-42-1 112284-44-3 112284-45-4 113656-92-1 113656-93-2  
(pos.-working **photoresists** contg. novolak resin and,  
for fabrication of integrated circuits and **photomasks**)
- IT 25053-98-9 27029-76-1 28410-56-2 38333-84-5 94289-75-5  
104955-68-2 **105489-72-3** 113578-36-2 113578-37-3  
113578-38-4 113578-39-5 113578-40-8 113578-41-9 113578-42-0  
113578-43-1 113578-44-2 113578-45-3 113578-46-4 113578-47-5  
113578-48-6 113578-49-7 113596-44-4  
(pos.-working **photoresists** contg. quinonediazide compd.  
and, for fabrication of integrated circuits and  
**photomasks**)

L45 ANSWER 18 OF 24 HCA COPYRIGHT 2004 ACS on STN

108:46855 Positive-working radiation-sensitive **resist**.

Hosaka, Yukihiro; Nozue, Ikuo; Takatori, Masashige; Harita,  
Yoshiyuki (Japan Synthetic Rubber Co., Ltd., Japan). Jpn. Kokai  
Tokkyo Koho JP 62150245 A2 19870704 Showa, 14 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 1985-291420 19851224.

GI



AB The **resist** is composed of an alkali-sol. polymer 100 and a 1,2-quinonediazide deriv. 5-100 wt. parts. The 1,2-quinonediazide deriv. has the formula I (R1-R10 = H, OH, 1,2-quinonediazidosulfonyl, C1-4 alkyl, C1-4 alkoxy, halo, CN, NO2, C1-4 acyl, and C1-4 aralkyl, if there are n OH and m 1,2-quinonediazidosulfonyl substituents, n = 0-9, m = 1-10, and  $5 \leq n + m \leq 10$ ). An alkali-sol. formaldehyde-m-cresol-p-cresol novolak copolymer and a triester of 2,3,4,2',6'-pentahydroxybenzophenone and 1,2-naphthoquinone-2-diazido-5-sulfonic acid may be mixed to give the **resist**. It is sensitive to UV radiation, x-rays, or electron beams and provides submicron **resist** patterns with improved resolu.

IT 105489-72-3

(novolak, pos.-working UV **photoresists** contg., for submicron patterns with improved resolu.)

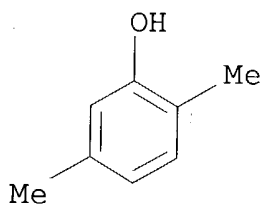
RN 105489-72-3 HCA

CN Formaldehyde, polymer with 2,5-dimethylphenol and 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 95-87-4

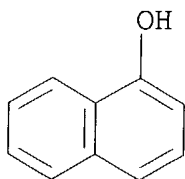
CMF C8 H10 O



CM 2

CRN 90-15-3

CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$ 

IC ICM G03C001-72  
ICS C08G010-04

ICA C08K005-27; C09D005-00

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST pos UV **photoresist** submicron pattern; quinonediazide deriv  
pos UV **photoresist**

IT **Resists**  
(photo-, UV, pos.-working, contg. cresol-based novolak resin and quinonediazide deriv. for submicron patterns with improved resoln.)

IT 3770-97-6 36451-09-9  
(esterification of, with hydroxybenzophenone, photosensitive compd. from, pos.-working UV **photoresists** contg., for submicron patterns)

IT 52479-85-3 112005-19-3 112232-16-3 112232-17-4 112232-18-5  
(esterification of, with naphthoquinonediazidosulfonyl chloride, photosensitive compd. from, pos.-working UV **photoresists** contg., for submicron patterns)

IT 25053-98-9 27029-76-1 94289-75-5 **105489-72-3**  
(novolak, pos.-working UV **photoresists** contg., for submicron patterns with improved resoln.)

IT 112284-38-5P 112284-39-6P 112284-40-9P 112284-41-0P  
112284-42-1P 112284-44-3P 112284-45-4P  
(prepn. and use of, as photosensitive compd. for pos.-working UV **photoresists**. for submicron patterns with improved resoln.)

L45 ANSWER 19 OF 24 HCA COPYRIGHT 2004 ACS on STN  
106:58944 Positive-working **photoresist** compositions.

Kamoshita, Yoichi; Samata, Toshikazu; Miura, Takao; Harita, Yoshiyuki (Japan Synthetic Rubber Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 61144644 A2 19860702 Showa, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1984-266378 19841219.

AB The title compns. for fine-patterning **resists** having high thermal and dry etching resistance contain a 1,2-quinoneazide compd. and a mixt. of novolak resins, 1 having a glass-transition temp. (Tg)  $\geq 80^\circ$  and 1 having a Tg  $\geq 30^\circ$  lower than the other. Thus, a novolak resin having Tg  $55^\circ$  was prepd. from 117 g m-cresol, 13 g p-cresol, 92 mL 37% HCHO, and 0.04 g oxalic acid. Another having Tg  $124^\circ$  was prepd. using 115 g  $\alpha$ -naphthol instead of the cresols and 0.38 g oxalic acid. The 1st resin 10.5, the 2nd 4.5, and 2,4,6-trihydroxybenzophenone 1,2-naphthoquinonediazido-5-sulfonic acid triester 3.5 g were dissolved in Cellosolve acetate, filtered, coated on a Si wafer, and dried to form a 1- $\mu$  layer which was prebaked at  $90^\circ$  for 30 min. Exposure through a Cr **mask** and development with 2.4% aq. Me<sub>4</sub>NOH ( $21^\circ$ , 60 s) gave a pos. **resist** pattern having a 0.7- $\mu$  line resoln. After postbaking ( $140^\circ$ , 30 min), the pattern was etched with a 1:6 mixt. of 49% HF and 40% NH<sub>4</sub>F, with minimal (0.7  $\mu$ ) side etching. Loss of resoln. by heating the pattern at  $180^\circ$  for 5 min was 0.1  $\mu$ . The ratio of the rate of etching using an O plasma of the Si oxide surface to that of the pattern was 4:1.

IT 25359-91-5

(pos. radiation-sensitive **resists** contg. quinoneazide compd. and, with high thermal and etching resistance)

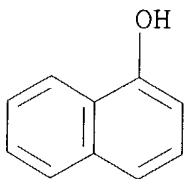
RN 25359-91-5 HCA

CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 90-15-3

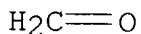
CMF C10 H8 O



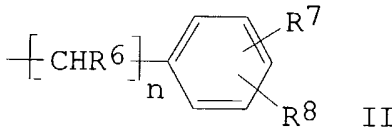
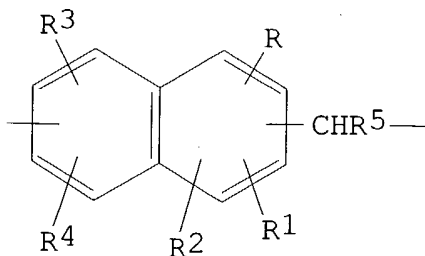
CM 2

CRN 50-00-0

CMF C H2 O



- IC ICM G03C001-72  
ICS G03F007-10
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST pos **resist** novolak resin quinoneazide
- IT Semiconductor devices  
(pos. radiation-sensitive **resists** contg. novolak resins and quinoneazide compd. for fabrication of)
- IT Phenolic resins, uses and miscellaneous  
(novolak, pos. radiation-sensitive **resists** contg. quinoneazide compd. and, with high thermal and etching resistance)
- IT **Resists**  
(radiation-sensitive, pos., contg. quinoneazide compd. and novolak resins with high thermal and etching resistance)
- IT 100417-71-8  
(pos. radiation-sensitive **resists** contg. novolak resins and, with high thermal and etching resistance)
- IT **25359-91-5** 27029-76-1  
(pos. radiation-sensitive **resists** contg. quinoneazide compd. and, with high thermal and etching resistance)
- L45 ANSWER 20 OF 24 HCA COPYRIGHT 2004 ACS on STN
- 105:235861 Positive-working **resist** compositions. Hosaka, Yukihiro; Miura, Takao; Harita, Yoshiyuki (Japan Synthetic Rubber Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 61130947 A2 19860618 Showa, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1984-251699 19841130.
- GI



- AB The title compns. comprise a 1,2-quinonediazide compd. and an alkali-sol. novolak resin with a structural units of the formula I

[R-R4 = H, OH, C1-4 alkyl, C1-4 alkoxy;  $\geq 1$  of R-R4 should be OH; R5 = H, C1-4 alkyl, II (R6 = H, Me; R7, R8 = H, C1-4 alkyl, halo, NO2; n = 0-2)]. The **resist** compns. exhibit good thermal resistance, dry-etching resistance, and developability and are esp. useful in the prodn. of integrated circuits and **masks**. Thus, an alkali-sol. novolak resin, prep'd. by addn.-condensation of 1-naphthol and HCHO (1:1.3 mol ratio), and 2,3,4-trihydroxybenzophenone tris(1,2-naphthoquinonediazide-5-sulfonate) were dissolved in Et cellosolve acetate to give a **resist** compn. The compn. was coated on a Si wafer, prebaked, patternwise exposed to UV through a **photomask**, and then developed with a tetramethylammonium hydroxide aq. soln. to obtain **resist** patterns, which did not deform at  $<150^\circ$  and showed good resistance to dry etching.

IT 25359-91-5 97485-42-2 105489-72-3  
105489-73-4 105489-74-5 105489-75-6  
105489-76-7

(photoresist compn. contg. quinonediazide compd. and, pos.-working)

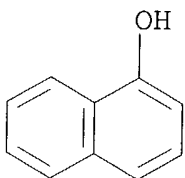
RN 25359-91-5 HCA

CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 90-15-3

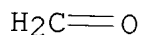
CMF C10 H8 O



CM 2

CRN 50-00-0

CMF C H2 O



RN 97485-42-2 HCA

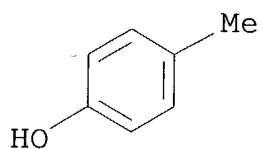
CN Formaldehyde, polymer with 4-methylphenol and 1-naphthalenol (9CI)  
(CA INDEX NAME)



CM 1

CRN 106-44-5

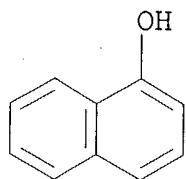
CMF C7 H8 O



CM 2

CRN 90-15-3

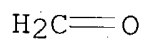
CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



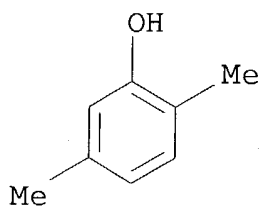
RN 105489-72-3 HCA

CN Formaldehyde, polymer with 2,5-dimethylphenol and 1-naphthalenol  
(9CI) (CA INDEX NAME)

CM 1

CRN 95-87-4

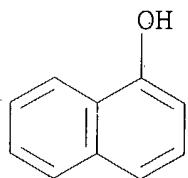
CMF C8 H10 O



CM 2

CRN 90-15-3

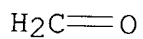
CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



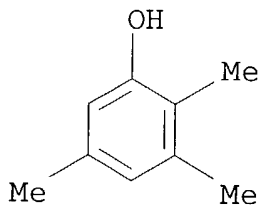
RN 105489-73-4 HCA

CN Formaldehyde, polymer with 1-naphthalenol and 2,3,5-trimethylphenol  
(9CI) (CA INDEX NAME)

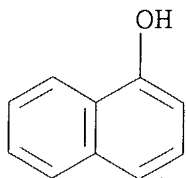
CM 1

CRN 697-82-5

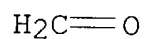
CMF C9 H12 O



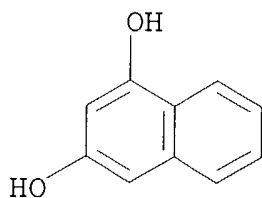
CM 2

CRN 90-15-3  
CMF C10 H8 O

CM 3

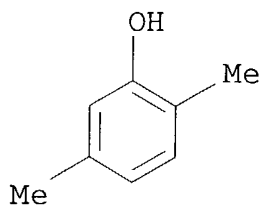
CRN 50-00-0  
CMF C H2 ORN 105489-74-5 HCA  
CN Formaldehyde, polymer with 2,5-dimethylphenol and  
1,3-naphthalenediol (9CI) (CA INDEX NAME)

CM 1

CRN 132-86-5  
CMF C10 H8 O2

CM 2

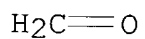
CRN 95-87-4  
CMF C8 H10 O



CM 3

CRN 50-00-0

CMF C H2 O



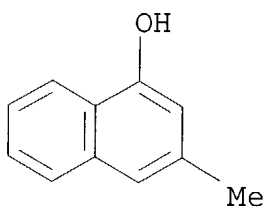
RN 105489-75-6 HCA

CN Formaldehyde, polymer with 2,5-dimethylphenol and  
3-methyl-1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 13615-40-2

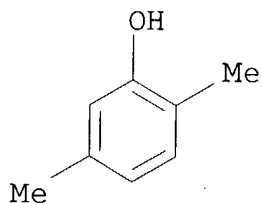
CMF C11 H10 O



CM 2

CRN 95-87-4

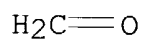
CMF C8 H10 O



CM 3

CRN 50-00-0

CMF C H2 O



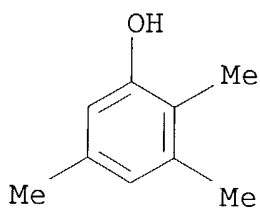
RN 105489-76-7 HCA

CN Formaldehyde, polymer with 1,4,5-naphthalenetriol and  
2,3,5-trimethylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 697-82-5

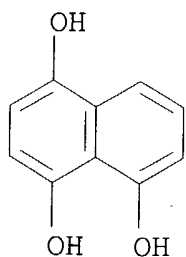
CMF C9 H12 O



CM 2

CRN 481-40-3

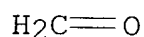
CMF C10 H8 O3



CM 3

CRN 50-00-0

CMF C H2 O



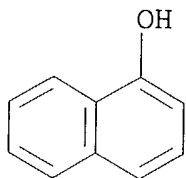
- IC ICM G03C001-72  
ICS C08K005-28; C08L061-06; G03F007-08
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST novolak resin pos working **resist**; quinonediazide pos working **resist** compn
- IT Phenolic resins, uses and miscellaneous  
(pos.-working **photoresist** compn. contg. quinonediazide compd. and, for improved dry-etching resistance)
- IT **Resists**  
(photo-, pos.-working, contg. novolak resin and quinonediazide compd., for improved dry-etching resistance)
- IT 5610-94-6 73003-79-9 100417-71-8 100417-73-0  
(**photoresist** compn. contg. phenolic resin and, pos.-working)
- IT 25359-91-5 97485-42-2 105489-72-3  
105489-73-4 105489-74-5 105489-75-6  
105489-76-7  
(**photoresist** compn. contg. quinonediazide compd. and, pos.-working)
- L45 ANSWER 21 OF 24 HCA COPYRIGHT 2004 ACS on STN
- 104:99543 **Photoresist** composition of cocondensed naphthol and phenol with formaldehyde in admixture with positive o-quinone diazide or negative azide. Gulla, Michael; Taylor, Paul; Oddi, Michael J. (Shipley Co., Inc., USA). U.S. US 4551409 A 19851105, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1983-549286 19831107.
- AB A **photoresist** compn. providing temp. resistant images (up to .apprx.300°) contains a binder from a naphthol polymer (alone or in mixt. with another resin). Thus, a glass support was spun coated with a **resist** compn. contg. p-phenylphenol 1,2-naphthoquinonediazide-(2)-4-sulfonate 2.5, diglycine 9.5, methyl Cellosolve acetate 3, o-cresol-HCOH polymer 10.5, a polymer (prepd. by reacting an arom. alc. mixt. contg. m-cresol 7.62, 4-tert-butylphenol 4.89, 1-naphthol 7.62 with HCOH 38.61 in the presence of 1 g of oxalic acid) 24.9 g, dried to provide 1.25  $\mu$  film, imagewise exposed for 1 min, and developed with AZ-1351 developer. The obtained images show no distortions after being baked at 140° for 30 min.
- IT 25359-91-5 87719-98-0 87720-00-1  
(**photoresist** compn. contg. naphthoquinone diazide compd. and binder from, for improved temp. resistant image)
- RN 25359-91-5 HCA

CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 90-15-3

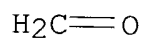
CMF C10 H8 O



CM 2

CRN 50-00-0

CMF C H2 O



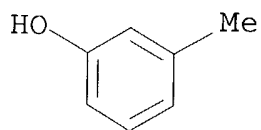
RN 87719-98-0 HCA

CN Formaldehyde, polymer with 4-(1,1-dimethylethyl)phenol, 3-methylphenol and 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 108-39-4

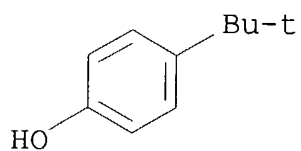
CMF C7 H8 O



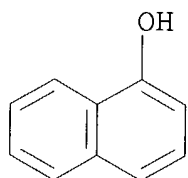
CM 2

CRN 98-54-4

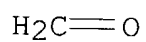
CMF C10 H14 O



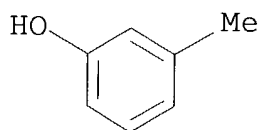
CM 3

CRN 90-15-3  
CMF C10 H8 O

CM 4

CRN 50-00-0  
CMF C H2 ORN 87720-00-1 HCA  
CN Formaldehyde, polymer with 3-methylphenol and 1-naphthalenol (9CI)  
(CA INDEX NAME)

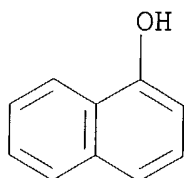
CM 1

CRN 108-39-4  
CMF C7 H8 O

CM 2



CRN 90-15-3  
CMF C10 H8 O



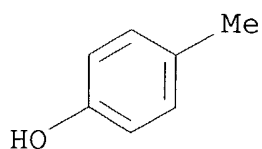
CM 3

CRN 50-00-0  
CMF C H2 O

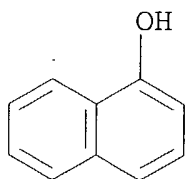
H<sub>2</sub>C=O

IC ICM G03C001-60  
ICS G03C001-71; G03F007-26  
NCL 430192000  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST naphthol polymer binder **photoresist**; temp resistant **photoresist** naphthol polymer; naphthoquinone naphthol formaldehyde polymer **photoresist**  
IT Phenolic resins, uses and miscellaneous  
(novolak, binders contg. naphthol polymers and, for **photoresist** compns., for improved image temp. resistance)  
IT **Resists**  
(photo-, binders for, naphthol polymers as, for improved image temp. resistance)  
IT 89-83-8D, polymers with naphthol 92-69-3D, polymers with naphthol  
95-48-7D, polymers with naphthol 95-65-8D, polymers with naphthol  
95-87-4D, polymers with naphthol 98-54-4D, polymers with naphthol  
105-67-9D, polymers with naphthol 106-44-5D, polymers with naphthol  
108-39-4D, polymers with naphthol 499-75-2D, polymers with naphthol  
(**photoresist** compn. contg. naphthoquinone diazide compd. and binder contg., for improved image temp. resistance)  
IT 25359-91-5 87719-98-0 87720-00-1  
(**photoresist** compn. contg. naphthoquinone diazide compd. and binder from, for improved temp. resistant image)  
IT 9003-09-2  
(**photoresist** compn. contg. naphthoquinone diazide

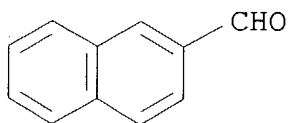
- compd. and, naphthol polymers as binders for, for improved image temp. resistance)
- IT 111-96-6 25053-96-7  
(**photoresist** compn. contg. naphthoquinone diazide compd. and, naphthol polymers as **resists** for, for improved image temp. resistance)
- IT 60772-48-7 100497-14-1  
(**photoresist** compn. contg., naphthol polymers as binders for, for improved temp. resistance image)
- L45 ANSWER 22 OF 24 HCA COPYRIGHT 2004 ACS on STN  
103:62600 Positive photosensitive compositions useful as **photoresists**. Miura, Konoe; Nagasaka, Hideki; Takahashi, Noriaki; Ochiai, Tameichi; Takasaki, Ryuichiro (Mitsubishi Chemical Industries Co., Ltd., Japan). Eur. Pat. Appl. EP 136110 A2 19850403, 19 pp. DESIGNATED STATES: R: DE, GB, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1984-305930 19840830. PRIORITY: JP 1983-158301 19830830; JP 1984-30097 19840220.
- AB A pos. **photoresist** contains a 1,2-naphthoquinonediazide compd. and a novolak resin comprising as condensation components  $\beta$ -naphthol, or  $\alpha$ -naphthol and  $\pi$ -cresol. Thus, a mixt. of  $\beta$ -naphthol 57.6, m-cresol 64.8, 37% aq. HCHO 81.9, oxalic acid dihydrate 1.84 g was heated at 100° for 1 h, after distg. off water at 130° mixed with Bu cellosolve, reacted at 180° for 30 min to provide a novolak resin (wt. av. mol. wt. 1500). Then 10 g of the above resin was dissolved in EtOAc together with 1.67 g of a triester of 1,2-naphthoquinone-2-diazide-5-sulfonic acid and 2,3,4-trihydroxybenzophenone. The soln. was spin-coated on a Si wafer with a layer of Si oxide to form 1  $\mu$ m thick film, prebaked at 90° for 30 min, imagewise exposed, developed at 25° for 1 min in NMD-3, rinsed with H2O for 1 min, dry etched using gas mixt. of O 5, CF4 95%.
- IT 97485-41-1P 97485-42-2P 97485-43-3P  
97485-44-4P 97519-96-5P  
(**photoresist** pos.-working contg. naphtholquinone diazide compd. and, prepn. of)
- RN 97485-41-1 HCA
- CN Formaldehyde, polymer with 4-methylphenol, 2-naphthalenecarboxaldehyde and 1-naphthalenol (9CI) (CA INDEX NAME)
- CM 1
- CRN 106-44-5
- CMF C7 H8 O



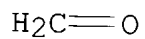
CM 2

CRN 90-15-3  
CMF C10 H8 O

CM 3

CRN 66-99-9  
CMF C11 H8 O

CM 4

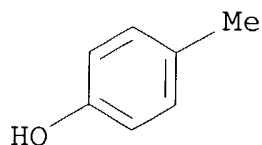
CRN 50-00-0  
CMF C H2 O

RN 97485-42-2 HCA

CN Formaldehyde, polymer with 4-methylphenol and 1-naphthalenol (9CI)  
(CA INDEX NAME)

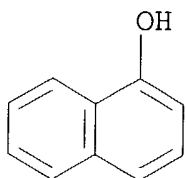
CM 1

CRN 106-44-5  
CMF C7 H8 O



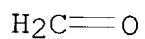
CM 2

CRN 90-15-3  
CMF C10 H8 O



CM 3

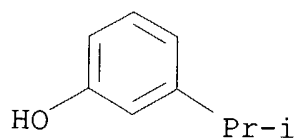
CRN 50-00-0  
CMF C H2 O



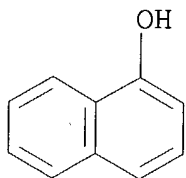
RN 97485-43-3 HCA  
CN Formaldehyde, polymer with 3-(1-methylethyl)phenol and  
1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

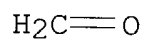
CRN 618-45-1  
CMF C9 H12 O



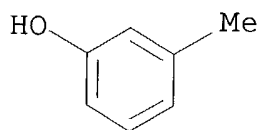
CM 2

CRN 90-15-3  
CMF C10 H8 O

CM 3

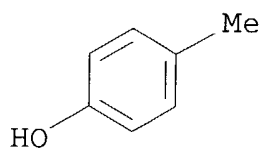
CRN 50-00-0  
CMF C H2 ORN 97485-44-4 HCA  
CN Formaldehyde, polymer with 3-methylphenol, 4-methylphenol and  
1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

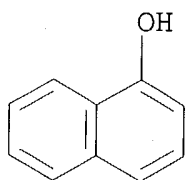
CRN 108-39-4  
CMF C7 H8 O

CM 2

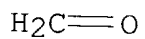
CRN 106-44-5  
CMF C7 H8 O



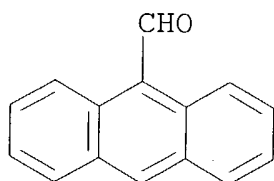
CM 3

CRN 90-15-3  
CMF C10 H8 O

CM 4

CRN 50-00-0  
CMF C H2 ORN 97519-96-5 HCA  
CN 9-Anthracenecarboxaldehyde, polymer with formaldehyde,  
4-methylphenol and 1-naphthalenol (9CI) (CA INDEX NAME)

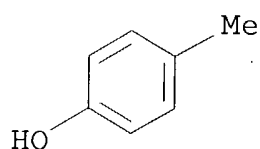
CM 1

CRN 642-31-9  
CMF C15 H10 O

CM 2

CRN 106-44-5

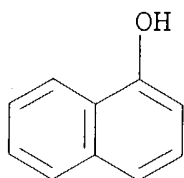
CMF C7 H8 O



CM 3

CRN 90-15-3

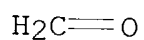
CMF C10 H8 O



CM 4

CRN 50-00-0

CMF C H2 O



IT 37604-38-9P 87719-99-1P 97485-40-0P

(pos. photoresist contg. naphthol quinone diazide  
compd. and, prepn. of)

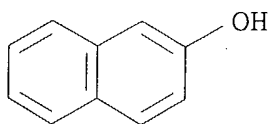
RN 37604-38-9 HCA

CN Formaldehyde, polymer with 2-naphthalenol and phenol (9CI) (CA  
INDEX NAME)

CM 1

CRN 135-19-3

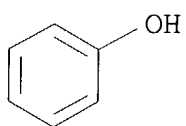
CMF C10 H8 O



CM 2

CRN 108-95-2

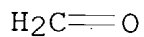
CMF C6 H6 O



CM 3

CRN 50-00-0

CMF C H2 O



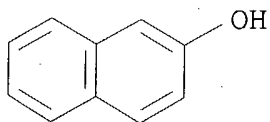
RN 87719-99-1 HCA

CN Formaldehyde, polymer with 3-methylphenol and 2-naphthalenol (9CI)  
(CA INDEX NAME)

CM 1

CRN 135-19-3

CMF C10 H8 O

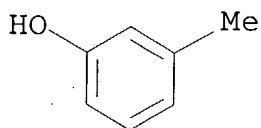


CM 2

CRN 108-39-4

CMF C7 H8 O

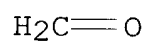




CM 3

CRN 50-00-0

CMF C H2 O



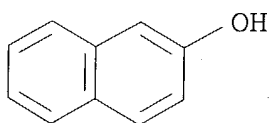
RN 97485-40-0 HCA

CN Formaldehyde, polymer with 2,5-dimethylphenol, 3-methylphenol and 2-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 135-19-3

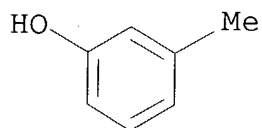
CMF C10 H8 O



CM 2

CRN 108-39-4

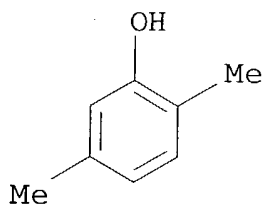
CMF C7 H8 O



CM 3

CRN 95-87-4

CMF C8 H10 O.



CM 4

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$ 

IC ICM G03F007-08

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST **photoresist** quinoneazide novolak resin

IT Phenolic resins, uses and miscellaneous

(novolak, contg. naphthol and cresol units, pos.

**photoresist** contg. naphthoquinone diazide compds. and)

IT Electric circuits

(integrated, pos. **photoresist** compn. for prepn. of, contg. novolak resin and naphthoquinone diazide compd.)IT **Resists**

(photo-, pos.-working, contg. novolak resin contg. naphthol and cresol components and naphthoquinone diazide compd.)

IT 97485-41-1P 97485-42-2P 97485-43-3P

97485-44-4P 97519-96-5P

(photoresist pos.-working contg. naphtholquinone diazide compd. and, prepn. of)

IT 37604-38-9P 87719-99-1P 97485-40-0P

(pos. **photoresist** contg. naphthol quinone diazide compd. and, prepn. of)

IT 5610-94-6

(pos. **photoresist** contg. novolak resin and)

L45 ANSWER 23 OF 24 HCA COPYRIGHT 2004 ACS on STN

97:128298 Vinyl chloride polymerization. Walker, Robert William; Stuart-Webb, John (Imperial Chemical Industries PLC, UK). Eur. Pat. Appl. EP 52421 A1 19820526, 31 pp. DESIGNATED STATES: R: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1981-304743 19811012. PRIORITY: GB 1980-35121 19801031.

AB Vinyl chloride was suspension-polymd. with no scale buildup in a

reactor coated with condensates of HCHO with 1-naphthol or 1,3-, 1,5-, or 1,7-dihydroxynaphthalene. Thus, a stainless steel reactor was internally coated with formaldehyde-1-naphthol copolymer [25359-91-5], charged with 100 parts vinyl chloride, 213 parts water, 0.24% partially hydrolyzed poly(vinyl acetate) (based on vinyl chloride), and di-Et peroxydicarbonate 0.09%, and heated at 57° until the pressure dropped to half the running pressure to give PVC [9002-86-2]. The reactor surfaces were completely free of buildup.

IT 25359-91-5 83016-92-6

(scale suppressant coatings, in reactors for suspension polymn. of vinyl chloride)

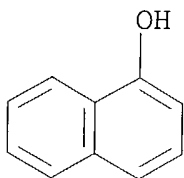
RN 25359-91-5 HCA

CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 90-15-3

CMF C10 H8 O



CM 2

CRN 50-00-0

CMF C H2 O

H<sub>2</sub>C=O

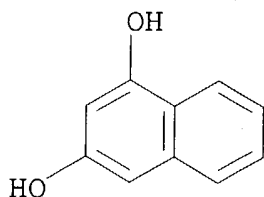
RN 83016-92-6 HCA

CN Formaldehyde, polymer with 1,3-naphthalenediol (9CI) (CA INDEX NAME)

CM 1

CRN 132-86-5

CMF C10 H8 O2



CM 2

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$ 

IC C08F014-06; C23F015-00

CC 35-4 (Chemistry of Synthetic High Polymers)

IT 25359-91-5 29928-17-4 83016-92-6 83016-93-7

(scale suppressant coatings, in reactors for suspension polymn. of vinyl chloride)

L45 ANSWER 24 OF 24 HCA COPYRIGHT 2004 ACS on STN

85:102301 Study of the kinetics and quantum yields of photolytic reactions of compositions incorporating esters of o-naphthoquinone diazides. Fedorov, Yu. I.; Molodnyakov, S. P.; Biryukova, T. G.; Ryabov, A. V. (Nauchno-Issled. Inst. Khim., Gorki, USSR). Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva im. D. I. Mendeleeva, 21(2), 228-9 (Russian) 1976. CODEN: ZVKOA6. ISSN: 0373-0247.

AB The quantum yields and the kinetics of the photolytic reaction taking place in **photoresist** layers comprised of sulfoesters of 1,2-naphthoquinone diazides and novolak-type resin were studied by using monochromatic radiation ( $\lambda = 366$  and  $436$  nm). The irradiation dose rate was  $2.14 \times 10^{-3}$  W/cm<sup>2</sup>. The above reaction follows a 1st-order rate equation, the rate constant being  $k = 2.3 \times 10^{-3}$  sec<sup>-1</sup>. Various combinations of phenols and aldehydes were studied and the corresponding quantum yields determined.

IT 25359-91-5

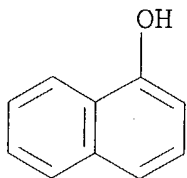
(photoresist of naphthoquinone diazide sulfoester and, photolysis of)

RN 25359-91-5 HCA

CN Formaldehyde, polymer with 1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 90-15-3  
CMF C10 H8 O



CM 2

CRN 50-00-0  
CMF C H2 O

H<sub>2</sub>C=O

- CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic Processes)  
Section cross-reference(s): 22
- IT Kinetics of photolysis  
Photolysis  
(of **photoresists** of novolak-type resin and sulfoesters of naphthoquinone diazide)
- IT **Resists**  
(photo-, novolak-sulfoester naphthoquinone diazide-type, photolysis of)
- IT 1-Naphthalenesulfonic acid, 6-diazo-5,6-dihydro-5-oxo-, esters  
(photoreactions of, with novolak-type resins, in pos. **photoresist** compns.)
- IT 9003-35-4 25085-50-1 **25359-91-5** 40113-98-2  
40114-03-2 60279-82-5  
(**photoresist** of naphthoquinone diazide sulfoester and, photolysis of)
- IT 25085-75-0  
(**photoresists** of naphthoquinone diazide sulfoester and iodinated or ethylated, photolysis of)

=> d his 149-

FILE 'REGISTRY' ENTERED AT 15:37:22 ON 28 SEP 2004  
L49 263953 S OC2/ES OR OC2/ESS

L50 146 S L28 NOT L49  
L51 16 S L28 NOT L50

FILE 'HCA' ENTERED AT 15:41:20 ON 28 SEP 2004

L52 192 S L50  
L53 178 S L52 NOT L45

=> d 153 1-178 ti

- L53 ANSWER 1 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Suppressing build-up in vinyl chloride polymerization by reaction products of phenol-containing compounds and formaldehyde
- L53 ANSWER 2 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Manufacture of scale inhibitors for vinyl chloride polymerization reactors
- L53 ANSWER 3 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Bacteriocidal activity of some new resin copolymers prepared from 2,4-dihydroxyphenyl ethyl ketone and 2,4-dihydroxyphenyl benzyl ketone
- L53 ANSWER 4 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Phenolic resins, their compositions with good reflow resistance and high glass transition temperature, their use for electronic device packaging, and packaged devices
- L53 ANSWER 5 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Flame-retardant epoxy resin compositions with good moldability and semiconductor devices sealed with them
- L53 ANSWER 6 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI High reliable and environmental friendly molding compound for CABGA packages
- L53 ANSWER 7 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Sealant compositions for liquid crystal display element with good adhesion
- L53 ANSWER 8 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Fire-resistant epoxy resin compositions and semiconductor devices sealed with them
- L53 ANSWER 9 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions and single-side sealed ball-grid array-type semiconductor devices sealed with the compositions

- L53 ANSWER 10 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Thermosetting epoxy resin compositions and their cured products with good heat moisture resistance
- L53 ANSWER 11 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Fire-and solder crack-resistant epoxy resin compositions for packaging semiconductor devices
- L53 ANSWER 12 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Modification of phenolic resin for high char yield
- L53 ANSWER 13 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions for semiconductor area packages with good thermal-shock resistance
- L53 ANSWER 14 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Reactors for manufacture of vinyl chloride polymers and scale deposition inhibitors
- L53 ANSWER 15 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Solder heat- and fire-resistant low-stress epoxy resin compositions for semiconductor device packaging, and the packaged devices
- L53 ANSWER 16 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions with good solder heat resistance and semiconductor devices
- L53 ANSWER 17 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Coated polymerization reactor for polymerizing vinyl monomers
- L53 ANSWER 18 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Producing a polymer by polymerization of an ethylenically unsaturated monomer in a reactor with an antiscaling dual coating system
- L53 ANSWER 19 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Flame-retardant thermosetting epoxy resin composition
- L53 ANSWER 20 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Polymerization in a reactor with double coating against scale formation
- L53 ANSWER 21 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions for electronic packaging and packaged electronic devices with improved moisture resistance
- L53 ANSWER 22 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions as electronic packaging materials with

moisture resistance and packaged electronic devices

- L53 ANSWER 23 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Naphthol resins, their manufacture, epoxy resins, their compositions, and cured products with good heat and water resistance
- L53 ANSWER 24 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions containing naphthol-derived phenolic resins and electronic devices packaged with the compositions
- L53 ANSWER 25 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Phenolic resins as models for the structure of coal
- L53 ANSWER 26 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions and semiconductor devices sealed therewith with excellent warpage resistance
- L53 ANSWER 27 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Naphthol resins, their manufacture, naphthol-based epoxy resins, resin compositions based on them, and their cured products with good heat and water resistance
- L53 ANSWER 28 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Naphthol resins, their manufacture, epoxy resins, their compositions and cured products with good heat and water resistance
- L53 ANSWER 29 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Polymerization process with a two layer coating against scale formation deposited using a steam carrier
- L53 ANSWER 30 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Manufacture of naphthol polymers with controlled molecular weight distribution
- L53 ANSWER 31 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Multilayer wiring board for flip-chip mounting
- L53 ANSWER 32 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Phenolic resin, resin composition, molding material for encapsulation, and electronic component device
- L53 ANSWER 33 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Naphthalene- and/or biphenyl skeleton-containing epoxy resin composition
- L53 ANSWER 34 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Carbonaceous material compositions having high energy density for secondary lithium ion batteries



- L53 ANSWER 35 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Concrete admixtures
- L53 ANSWER 36 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Antifouling agents, preparation thereof, compositions containing them and polymerization of vinyl monomers in reactors coated therewith
- L53 ANSWER 37 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Polymerization of vinyl chloride by using scale inhibitor-coated apparatuses
- L53 ANSWER 38 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI A new method of synthesis naphthol-modified phenolic resins with low molecular weight reaction
- L53 ANSWER 39 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Manufacture of phenolic resins and epoxy resin hardeners and electronic part-sealing epoxy resin molding material using the same with good reflow properties and high glass transition temperature
- L53 ANSWER 40 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat-resistant phenolic resin with excellent fluidity
- L53 ANSWER 41 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat-resistant phenolic resins with good fluidity
- L53 ANSWER 42 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Synthesis and structural characteristics of polycyclic aromatic hydrocarbon-containing phenol formaldehyde resites
- L53 ANSWER 43 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat-resistant phenolic resins with good fluidity
- L53 ANSWER 44 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Moisture-resistant epoxy resin compositions with good adhesion to lead frames, and semiconductor devices sealed by the cured compositions
- L53 ANSWER 45 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Naphtholic epoxy resin adhesives for solid imaging devices
- L53 ANSWER 46 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI New asphalt emulsifiers for road pavement
- L53 ANSWER 47 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin potting compositions and semiconductor devices

- L53 ANSWER 48 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions for hollow packaging materials with good moisture resistance
- L53 ANSWER 49 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Manufacture of epoxy resin compositions with good flowability for packaging electronic devices
- L53 ANSWER 50 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Naphthol-based phenolic resins for preparation of whetstones
- L53 ANSWER 51 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin molding materials for sealing electronic parts and sealed semiconductor devices using the same
- L53 ANSWER 52 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxidized allylnaphthols and their use in epoxy resin compositions
- L53 ANSWER 53 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Preparation of phenolic resins as epoxy resin curing agents and epoxy resin molding materials for sealing electronic parts
- L53 ANSWER 54 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Allylnaphthol-aldehyde condensate-based epoxy resins with low melting viscosity and compositions thereof
- L53 ANSWER 55 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Allylnaphthol condensates and epoxy resin compositions based on them
- L53 ANSWER 56 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin hardeners and epoxy resin compositions containing them
- L53 ANSWER 57 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Allylnaphthol co-condensates and epoxy resin compositions based on them
- L53 ANSWER 58 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Phenolic curing agents and epoxy resin potting compositions for electronic parts
- L53 ANSWER 59 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Polyallylnaphthols, curing agents containing them for epoxy resins, and epoxy resin compositions
- L53 ANSWER 60 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Monoallylnaphthols, curing agents containing them for epoxy resins, and epoxy resin compositions

- L53 ANSWER 61 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Low-pressure transfer-moldable epoxy resin potting compositions for semiconductors
- L53 ANSWER 62 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Moisture-resistant epoxy resin potting compositions and semiconductor devices sealed by them
- L53 ANSWER 63 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Phenolic resins and epoxy resins with high purity and refractive index and manufacture thereof, resin compositions and cured products with high heat and moisture resistance
- L53 ANSWER 64 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Laminate and multilayer printed circuit board
- L53 ANSWER 65 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions with good solder crack resistance after moisture absorption for sealing electronic parts and semiconductor devices
- L53 ANSWER 66 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Preparing naphthol-modified phenolic resin as hardener for epoxy resin molding material for sealing electronic parts
- L53 ANSWER 67 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Naphthol novolac epoxy resin compositions for encapsulation of semiconductor devices
- L53 ANSWER 68 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions for packaging of semiconductor devices
- L53 ANSWER 69 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Preparation of naphthol-modified phenolic resins with narrow molecular weight distribution
- L53 ANSWER 70 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions for semiconductor devices
- L53 ANSWER 71 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat- and moisture-resistant epoxy resin compositions for manufacture of semiconductor devices
- L53 ANSWER 72 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin-impregnated substrates and laminates for circuit boards
- L53 ANSWER 73 OF 178 HCA COPYRIGHT 2004 ACS on STN

- TI Epoxy resin packaging compositions for the manufacture of semiconductor devices
- L53 ANSWER 74 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resins for crack-resistant pottings
- L53 ANSWER 75 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Thermosetting epoxy resin pressure-sensitive adhesive compositions
- L53 ANSWER 76 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions for heat- and water-resistant laminates
- L53 ANSWER 77 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Thermosetting epoxy resin compositions for potting of semiconductor devices
- L53 ANSWER 78 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Thermosetting potting compositions containing dicyclopentadiene-modified phenolic resin and epoxy resin
- L53 ANSWER 79 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions and their cured products
- L53 ANSWER 80 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions and their cured products
- L53 ANSWER 81 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Preparation of naphthol resins for epoxy resin hardeners and molding materials
- L53 ANSWER 82 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin potting compositions for semiconductors
- L53 ANSWER 83 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions and their cured products
- L53 ANSWER 84 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat-resistant phenolic resin molding materials
- L53 ANSWER 85 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Low-stress epoxy resin potting compositions
- L53 ANSWER 86 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin-based potting compositions
- L53 ANSWER 87 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions for sealing electronic parts

- L53 ANSWER 88 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions for electronic packaging with low mold shrinkage and good resistance to heat cracking
- L53 ANSWER 89 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Solder-crack-resistant epoxy resin potting compositions for semiconductors
- L53 ANSWER 90 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin sealants containing amorphous silica for semiconductor devices
- L53 ANSWER 91 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin potting compositions having solder stress resistance
- L53 ANSWER 92 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin potting compositions for semiconductors
- L53 ANSWER 93 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Semiconductor sealing compositions
- L53 ANSWER 94 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin molding materials for sealing electronic parts
- L53 ANSWER 95 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin potting compositions containing fillers promoting good fluidity
- L53 ANSWER 96 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin potting compositions for semiconductors
- L53 ANSWER 97 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Soldering-resistant epoxy resin potting compositions for semiconductor devices
- L53 ANSWER 98 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI epoxy resin potting compositions for semiconductor devices
- L53 ANSWER 99 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Preparation of naphthol-based novolak resins and their epoxy derivatives
- L53 ANSWER 100 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Utilization of insoluble polyelectrolyte complexes formed in preliminary chemical purification of tanning solution. I. Properties of polyelectrolyte complexes
- L53 ANSWER 101 OF 178 HCA COPYRIGHT 2004 ACS on STN

- TI Epoxy resin compositions containing naphthalenyl cresolic compounds for semiconductor sealants
- L53 ANSWER 102 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions containing siloxanes for semiconductor sealants
- L53 ANSWER 103 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions for semiconductor sealants
- L53 ANSWER 104 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions containing naphthalenyl cresolic compounds for semiconductor sealants
- L53 ANSWER 105 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin potting compositions for semiconductors
- L53 ANSWER 106 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Solder-stress-resistant epoxy resin potting compositions for semiconductors
- L53 ANSWER 107 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Solder-stress-resistant epoxy resin potting compositions for semiconductors
- L53 ANSWER 108 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Thermosetting resin compositions
- L53 ANSWER 109 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Sulfonated phenolic resins as dispersing and emulsifying agents
- L53 ANSWER 110 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Hydroxynaphthalene-based phenolic epoxy resin potting compositions with improved heat resistance
- L53 ANSWER 111 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions and semiconductor devices using the same
- L53 ANSWER 112 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Phenolic novolak resins and their use as curing agents for epoxy resin semiconductor encapsulants
- L53 ANSWER 113 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Friction materials for automotive brakes
- L53 ANSWER 114 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat- and moisture-resistant epoxy resin compositions for sealants

- L53 ANSWER 115 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat- and moisture-resistant epoxy resin compositions for sealants
- L53 ANSWER 116 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat- and moisture-resistant epoxy resin compositions for sealants
- L53 ANSWER 117 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat- and moisture-resistant epoxy resin compositions for sealants
- L53 ANSWER 118 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat-resistant epoxy resin compositions for sealing semiconductors
- L53 ANSWER 119 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat- and moisture-resistant epoxy resin compositions for sealants
- L53 ANSWER 120 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat- and moisture-resistant epoxy resin compositions for sealants
- L53 ANSWER 121 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat- and moisture-resistant epoxy resin compositions for selaing semiconductor devices
- L53 ANSWER 122 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Polyesters and polyester-polyamides and manufacture thereof
- L53 ANSWER 123 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Heat- and moisture-resistant epoxy resin compositions
- L53 ANSWER 124 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Novolak resins and their manufacture, and epoxy resins and their compositions and cured products
- L53 ANSWER 125 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Polyhydroxy aromatic compounds, epoxy resins derived therefrom, and epoxy resin compositions for semiconductor encapsulant
- L53 ANSWER 126 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Allyl or propenyl group-containing naphthalene derivatives
- L53 ANSWER 127 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Phenol novolak compounds and resins for potting and molding compositions and laminates
- L53 ANSWER 128 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Producing naphthol-modified phenolic resins
- L53 ANSWER 129 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Curing reaction of o-cresol novolak epoxy resin according to

hardener change

- L53 ANSWER 130 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions, their preparation, and semiconductor devices encapsulated with them
- L53 ANSWER 131 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Packaging materials for semiconductor devices
- L53 ANSWER 132 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin molding materials for potting compositions of electronic parts
- L53 ANSWER 133 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Preparation of novolak resins as hardeners for epoxy resins
- L53 ANSWER 134 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Alternating and block bis(hydroxymethyl)phenol copolymer resins
- L53 ANSWER 135 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Polyhydric phenols as curing agents and epoxy resin compositions containing them
- L53 ANSWER 136 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy-phenolic novolak resin potting compositions
- L53 ANSWER 137 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Naphthol-based poly(glycidyl ether) novolak potting compositions for semiconductor devices
- L53 ANSWER 138 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin molding materials for sealing electronic devices
- L53 ANSWER 139 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin potting compositions for semiconductor devices
- L53 ANSWER 140 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin material for sealing of electronic parts
- L53 ANSWER 141 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Epoxy resin compositions for potting of semiconductor devices
- L53 ANSWER 142 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Phenolic epoxy resins as impregnants for filament-winding composites
- L53 ANSWER 143 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Powdered or granulated disperse dye preparations



- L53 ANSWER 144 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Preparation of liquid resol for heat-resistant products
- L53 ANSWER 145 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Resol epoxy resin and its manufacture
- L53 ANSWER 146 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Rapid vegetable tanning process with recycling. 3. Laboratory model
- L53 ANSWER 147 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Manufacture of fast-curing ammonia-free solid resolic resins
- L53 ANSWER 148 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Organic polymer composite plating film and electroplating of the film
- L53 ANSWER 149 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Additive for plating bath and composite electroplating bath containing the additive
- L53 ANSWER 150 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Exhausted tanning baths in Rapitan technology. III. Analysis of exhausted tanning baths
- L53 ANSWER 151 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Analytical study of syntans. 8. Determination of sulfates in syntans
- L53 ANSWER 152 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Method for the preparation of stable, pumpable, aqueous aluminosilicate suspensions
- L53 ANSWER 153 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Stable, pumpable, aqueous suspensions of water-insoluble aluminosilicates
- L53 ANSWER 154 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Analytical study of syntans. VII. Interrelations between effective and potential tanning agents
- L53 ANSWER 155 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Wet milling of C.I. Disperse Yellow 23
- L53 ANSWER 156 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Analytical study of syntans. VI. Interaction with gelatin in aqueous solution

- L53 ANSWER 157 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Naphthol novolak resin blend
- L53 ANSWER 158 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI High temperature naphthol novolak resin
- L53 ANSWER 159 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Pigment dispersions useful in coloring hydrophilic and hydrophobic media
- L53 ANSWER 160 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Fragmental semiempirical calculation of electronic distribution and dipole moments of polyesters with conjugated double bonds
- L53 ANSWER 161 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Dispersing agents for stable rubber latexes
- L53 ANSWER 162 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Treatment of waste cutting emulsions
- L53 ANSWER 163 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI High-energy brake and brake components
- L53 ANSWER 164 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Effect of temperature and frequency variation on the permittivity and dissipation factor of some molded phenolic resins
- L53 ANSWER 165 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Thermolysis of oligomers containing phenylhexatrienecarboxylic acid esters
- L53 ANSWER 166 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Friction particle for brake lining
- L53 ANSWER 167 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Friction particle for brake lining
- L53 ANSWER 168 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Modification of  $\beta$ -naphthol-ketone and aldehyde condensation products with phenolic products for molding
- L53 ANSWER 169 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Synthesis and some properties of esters of cinnamic, styreneacrylic, and phenylbutadieneacrylic acids and products of the condensation of phenols ( $\alpha$ -naphthol) with aldehydes
- L53 ANSWER 170 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Use of thermogravimetric analysis for evaluating the thermal

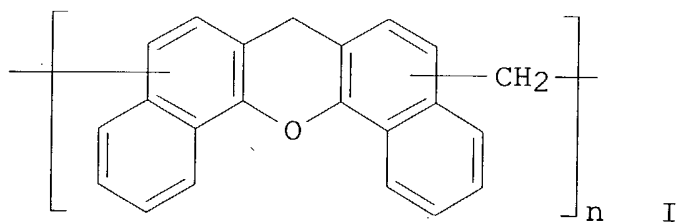
stability of light-sensitive compounds

- L53 ANSWER 171 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Friction particle for brake lining
- L53 ANSWER 172 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Detergent containing soil redeposition inhibitors
- L53 ANSWER 173 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Friction particles for brake linings
- L53 ANSWER 174 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Polymers of pharmacological interest. Nonaqueous titrimetry
- L53 ANSWER 175 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Ablative resins for hyperthermal environments
- L53 ANSWER 176 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Thermosetting copolymers of phenol and its derivatives with formaldehyde
- L53 ANSWER 177 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Copolymers of phenol, formaldehyde, 2,7-dihydroxynaphthalene, and potassium hydroxide
- L53 ANSWER 178 OF 178 HCA COPYRIGHT 2004 ACS on STN  
TI Plywood bonding resins containing dihydroxynaphthalenes

=> d 153 4,30,31,32,40,43,64,69,93,127,128,131,157,176 cbib abs hitstr  
hitind

- L53 ANSWER 4 OF 178 HCA COPYRIGHT 2004 ACS on STN  
137:21243 Phenolic resins, their compositions with good reflow resistance and high glass transition temperature, their use for electronic device packaging, and packaged devices. Sue, Haruaki; Oshita, Takeshi (Hitachi Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002167416 A2 20020611, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-366203 20001130.

GI



AB Title resins, which give compns. with low molding shrinkage, high adhesion, and good flowability, contain phenolic resins having structural repeating units  $[C_6H_3(OH)CH(C_6H_4OH-4)]_l$  ( $l = 0-5$ ) and/or  $[Z(OH)CH(C_6H_4OH-4)]_m$  [ $Z =$  naphthalenediyl;  $m = 0-5$ ; ( $l + m \geq 1$ ), and phenolic resins having structural repeating units I ( $n = 1-5$ ). Thus, 1-naphthol 144, PhOH 94, p-hydroxybenzaldehyde 73.2, and 37% formalin were polymd. to give a phenolic resin with OH equiv 151, 71.6 parts were kneaded with YX 4000H (biphenyl-based epoxy resin) 65, 400 T (brominated bisphenol epoxy resin) 15, Ph3P 2.5, spherical molten silica 1200, coupling agent 4, carnauba wax 3, and C black 1 part, transfer molded, and post cured to show  $T_g$   $184^\circ$ ,  $\alpha_1$   $0.84 + 10^{-5}/^\circ C$ , and  $\alpha_2$   $3.50 + 10^{-5}/^\circ C$ .

IT **434327-40-9**, Formaldehyde-p-hydroxybenzaldehyde-1-naphthol-phenol copolymer  
(polycyclic phenolic resins as crosslinking agents for electronic device packaging)

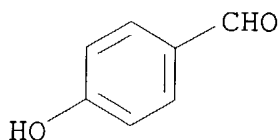
RN 434327-40-9 HCA

CN Benzaldehyde, 4-hydroxy-, polymer with formaldehyde, 1-naphthalenol and phenol (9CI) (CA INDEX NAME)

CM 1

CRN 123-08-0

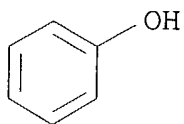
CMF C7 H6 O2



CM 2

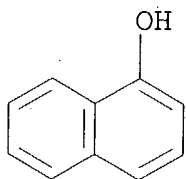
CRN 108-95-2

CMF C6 H6 O



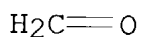
CM 3

CRN 90-15-3  
CMF C10 H8 O



CM 4

CRN 50-00-0  
CMF C H2 O



IC ICM C08G008-28  
ICS C08G059-62; H01L023-29; H01L023-31  
CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 37, 76  
IT **434327-40-9**, Formaldehyde-p-hydroxybenzaldehyde-1-naphthol-phenol copolymer  
(polycyclic phenolic resins as crosslinking agents for electronic device packaging)

L53 ANSWER 30 OF 178 HCA COPYRIGHT 2004 ACS on STN  
131:74150 Manufacture of naphthol polymers with controlled molecular weight distribution. Oshimi, Katsuhiko; Kajiwara, Yoshitaka; Kuboki, Kenichi; Akatsuka, Yasumasa (Nippon Kayaku Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11171954 A2 19990629 Heisei, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-362381 19971212.

AB The polymers, useful for prepn. of epoxy resins, are manufd. by reaction of naphthols with HCHO or HCHO-generating compds. in the

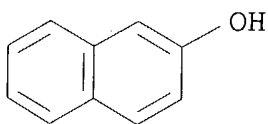
presence of phenols under basic conditions and further reaction of the resulting methylol compds. under acidic conditions. Thus, 288 parts  $\beta$ -naphthol was treated with 67 parts paraformaldehyde at 25° for 2 h in the presence of 108 parts o-cresol and NaOH, neutralized with HCl, and further treated with p-toluenesulfonic acid at 25° for 2 h and 80° for 2 h to give 416 parts naphthol polymer showing ICI melt viscosity 7.6 P at 150°, softening point 105°, and OH equiv. 140 g/equiv.

IT 141111-12-8P, o-Cresol-formaldehyde- $\beta$ -naphthol copolymer 143382-40-5P, p-Cresol-formaldehyde- $\beta$ -naphthol copolymer  
(naphthol polymers manufd. by methylolation under basic conditions and polymn. with phenols under acidic conditions)  
RN 141111-12-8 HCA  
CN Formaldehyde, polymer with 2-methylphenol and 2-naphthalenol (9CI)  
(CA INDEX NAME)

CM 1

CRN 135-19-3

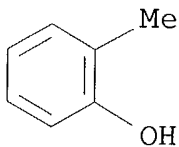
CMF C10 H8 O



CM 2

CRN 95-48-7

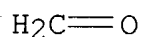
CMF C7 H8 O



CM 3

CRN 50-00-0

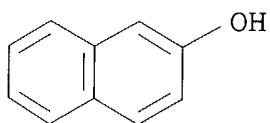
CMF C H2 O



RN 143382-40-5 HCA  
 CN Formaldehyde, polymer with 4-methylphenol and 2-naphthalenol (9CI)  
 (CA INDEX NAME)

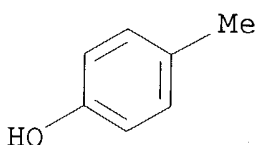
CM 1

CRN 135-19-3  
 CMF C10 H8 O



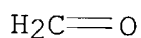
CM 2

CRN 106-44-5  
 CMF C7 H8 O



CM 3

CRN 50-00-0  
 CMF C H2 O



IC ICM C08G008-08  
 CC 35-5 (Chemistry of Synthetic High Polymers)  
 IT **141111-12-8P**, o-Cresol-formaldehyde-β-naphthol  
 copolymer **143382-40-5P**, p-Cresol-formaldehyde-β-  
 naphthol copolymer  
 (naphthol polymers manufd. by methylolation under basic  
 conditions and polymn. with phenols under acidic conditions)

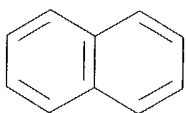
L53 ANSWER 31 OF 178 HCA COPYRIGHT 2004 ACS on STN  
130:118385 Multilayer wiring board for flip-chip mounting. Shimada, Yasushi; Kamishiro, Yasushi; Yamamoto, Kazunori; Inada, Yoshikazu (Hitachi Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10341083 A2 19981222 Heisei, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-152068 19970610.  
AB The wiring board has an elec. insulating layer contg. a resin with tensile modulus  $\leq 700$  MPa at 25° and an inorg. filler with sp. surface area  $\leq 5.0$  m<sup>2</sup>/g and is placed just under the outermost elec. wiring layer. The board shows decreased thermal expansion coeff. with keeping low modulus to improve contact reliability to electronic devices to be mounted on.  
IT 128192-20-1D, NH 7000, reaction products with epoxy-contg. acrylic rubber  
(elec. insulating layer; multilayer wiring board for flip-chip mounting)  
RN 128192-20-1 HCA  
CN Formaldehyde, polymer with methylphenol and naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 1321-67-1

CMF C10 H8 O

CCI IDS



D1-OH

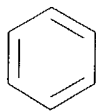
CM 2

CRN 1319-77-3

CMF C7 H8 O

CCI IDS





D1-OH

D1-Me

CM 3

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$ 

IC ICM H05K003-46  
ICS C08K003-00; C08L101-00; C09J007-00; C09J007-02; C09J009-00;  
C09J011-04; C09J109-02; C09J133-08; C09J133-20; C09J163-00;  
C09J171-10

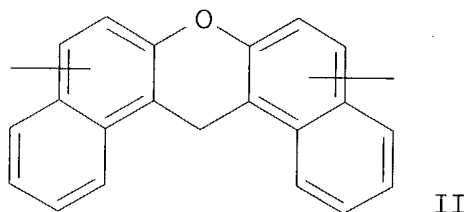
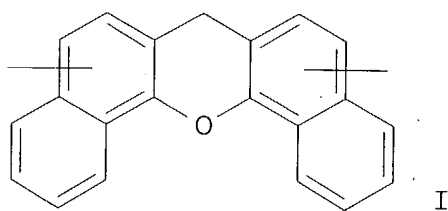
CC 76-14 (Electric Phenomena)  
Section cross-reference(s): 38, 39

IT 25068-38-6D, Epikote 828, reaction products with epoxy-contg.  
acrylic rubber 25085-99-8D, YD 8125, reaction products with  
epoxy-contg. acrylic rubber **128192-20-1D**, NH 7000,  
reaction products with epoxy-contg. acrylic rubber 158163-91-8D,  
NC 7000, reaction products with epoxy-contg. acrylic rubber  
183748-49-4D, ESCN 001, reaction products with epoxy-contg. acrylic  
rubber 183748-53-0D, Phenolite LF 2882, reaction products with  
epoxy-contg. acrylic rubber 206452-15-5D, N 673-80M, reaction  
products with epoxy-contg. acrylic rubber 206566-37-2D, Phenolite  
LF 2822, reaction products with epoxy-contg. acrylic rubber  
(elec. insulating layer; multilayer wiring board for flip-chip  
mounting)

L53 ANSWER 32 OF 178 HCA COPYRIGHT 2004 ACS on STN  
130:39534 Phenolic resin, resin composition, molding material for  
encapsulation, and electronic component device. Sue, Haruaki;  
Hagiwara, Shinsuke; Furusawa, Fumio; Akagi, Seiichi; Tendo,  
Kazuyoshi (Hitachi Chemical Co., Ltd., Japan). PCT Int. Appl. WO  
9855523 A1 19981210, 51 pp. DESIGNATED STATES: W: AL, AM, AT, AU,

AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1998-JP2452 19980603. PRIORITY: JP 1997-145077 19970603; JP 1997-331587 19971202; JP 1998-13943 19980127.

GI



AB Phenolic resins having structure units I or II are prepd. and used as crosslinking agents for epoxy resins. Thus, formaldehyde-1-naphthol-phenol copolymer was prepd. and mixed (96 parts) with YX 4000H 78, ESB 400T (brominated bisphenol epoxy resin) 18, Ph3P 2.5, carnauba wax 3, carbon black 1,  $\gamma$ -glycidoxypopyltrimethoxysilane 4, quartz glass powder 1200 parts to prep. a potting compn.

IT 37604-38-9P, Formaldehyde-2-naphthol-phenol copolymer  
 110634-63-4P, Formaldehyde-1-naphthol-phenol copolymer  
 141111-12-8P, o-Cresol-formaldehyde-2-naphthol copolymer  
 145566-36-5P, o-Cresol-formaldehyde-1-naphthol copolymer  
 (potting compns. contg. phenolic resins and epoxy resins for electronic devices)

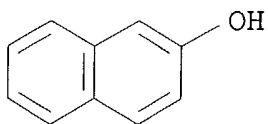
RN 37604-38-9 HCA

CN Formaldehyde, polymer with 2-naphthalenol and phenol (9CI) (CA INDEX NAME)

CM 1

CRN 135-19-3

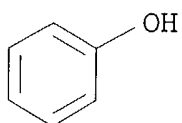
CMF C10 H8 O



CM 2

CRN 108-95-2

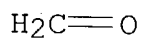
CMF C6 H6 O



CM 3

CRN 50-00-0

CMF C H2 O



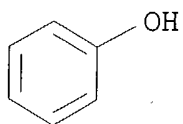
RN 110634-63-4 HCA

CN Formaldehyde, polymer with 1-naphthalenol and phenol (9CI) (CA  
INDEX NAME)

CM 1

CRN 108-95-2

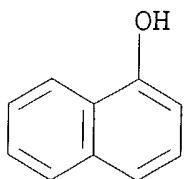
CMF C6 H6 O



CM 2

CRN 90-15-3

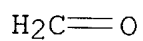
CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



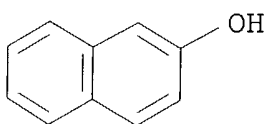
RN 141111-12-8 HCA

CN Formaldehyde, polymer with 2-methylphenol and 2-naphthalenol (9CI)  
(CA INDEX NAME)

CM 1

CRN 135-19-3

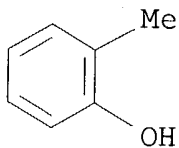
CMF C10 H8 O



CM 2

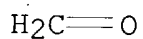
CRN 95-48-7

CMF C7 H8 O



CM 3

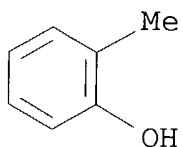
CRN 50-00-0  
CMF C H2 O



RN 145566-36-5 HCA  
CN Formaldehyde, polymer with 2-methylphenol and 1-naphthalenol (9CI)  
(CA INDEX NAME)

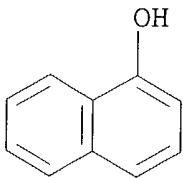
CM 1

CRN 95-48-7  
CMF C7 H8 O



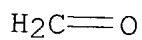
CM 2

CRN 90-15-3  
CMF C10 H8 O



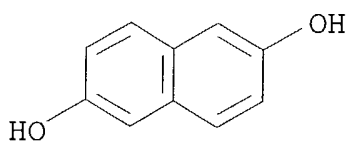
CM 3

CRN 50-00-0  
CMF C H2 O



IC ICM C08G008-36  
ICS C08G059-62; C08G008-24; C08L063-00; C08L061-14; H01L023-29

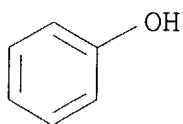
- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 76
- IT 37604-38-9P, Formaldehyde-2-naphthol-phenol copolymer  
110634-63-4P, Formaldehyde-1-naphthol-phenol copolymer  
141111-12-8P, o-Cresol-formaldehyde-2-naphthol copolymer  
145566-36-5P, o-Cresol-formaldehyde-1-naphthol copolymer  
(potting compns. contg. phenolic resins and epoxy resins for electronic devices)
- L53 ANSWER 40 OF 178 HCA COPYRIGHT 2004 ACS on STN  
127:332268 Heat-resistant phenolic resin with excellent fluidity.  
Orihara, Tamotsu; Miyake, Sumiya (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09263617 A2 19971007 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-74914 19960328.
- AB Title resin is obtained by cocondensing (1) HO(AXA)nOH (X = single bond, 1,4-cyclohexylene, CO<sub>2</sub>, CM:CM, C.tplbond.C; A = 1,4-phenylene, 1,4-, 2,6-, or 2,7-naphthalene; M = H, monovalent arom. residue, C≤4 alkyl; n = 1-3), (2) R1C6H4OH (R1 = OH, H, C≤4 alkyl), and (3) R2B1(Y1B2)n(Y2B1)mR2 [B1, B2 = 1,4-phenylene, 1,4-, 2,6-, or 2,7-naphthalene, 1,4-cyclohexylene; Y1, Y2 = (heteroatom-contg.) C≤10 org. residue, O, CO<sub>2</sub>, CO, SiZ<sub>2</sub>O, SiZ<sub>2</sub>, S, SO, SO<sub>2</sub>, NHCO; R2 = OH, NH<sub>2</sub>; Z = H, C≤7 alkyl, arom. org. residue; m = 0-1; n = 0-3] with aldehydes. Thus, 4,4'-biphenol 50, PhOH 10.2, bisphenol A 24.6, and 37% formaldehyde soln. 25.6 parts were heated in the presence of 1 part (CO<sub>2</sub>H)2.2H<sub>2</sub>O in MeOH under reflux for 1.5 h to give phenolic resin, 45 parts of which was blended with hexamethylenetetramine 7, Ca(OH)<sub>2</sub> 3, and CaCO<sub>3</sub> 45 parts, molded, and cured to give test pieces showing coeff. of linear thermal expansion  $1.4 + 10^{-5}/^{\circ}\text{C}$ , temp. of deflection under 1.82 MPa load 210°, and melt viscosity (at 130°) 22 p.
- IT 197915-82-5P  
(heat-resistant phenolic resins with excellent fluidity)
- RN 197915-82-5 HCA
- CN Formaldehyde, polymer with 4,4'-(1-methylethylidene)bis[phenol], 2,6-naphthalenediol and phenol (9CI) (CA INDEX NAME)
- CM 1
- CRN 581-43-1
- CMF C10 H8 O2



CM 2

CRN 108-95-2

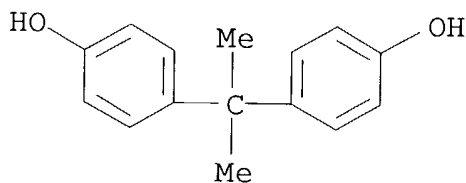
CMF C6 H6 O



CM 3

CRN 80-05-7

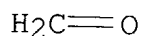
CMF C15 H16 O2



CM 4

CRN 50-00-0

CMF C H2 O



IC ICM C08G008-10

ICS C08G012-06

CC 37-3 (Plastics Manufacture and Processing)

IT 197915-80-3P 197915-81-4P **197915-82-5P**

(heat-resistant phenolic resins with excellent fluidity)

L53 ANSWER 43 OF 178 HCA COPYRIGHT 2004 ACS on STN

127:308065 Heat-resistant phenolic resins with good fluidity. Orihara, Yamotsu; Miyake, Sumiya (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09255743 A2 19970930 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-70389 19960326.

AB Title resins are obtained by copolymerization. (A) HO(AXA)nOH [X = single bond, 1,4-cyclohexylene, COO, CM:CM; C.tplbond.C; A = 1,4-phenylene,

1,4-naphthalene, 2,6-naphthalene, 2,7-naphthalene; M = H, monovalent arom. residue, C $\leq$ 4 alkyl; n = 1-3], and (B) RB1(Y1B2)n(Y2B1)mR [B1, B2 = 1,4-phenylene, 1,4-naphthalene, 2,6-naphthalene, 2,7-naphthalene, 1,4-cyclohexyl; Y1, Y2 = (heteroatom-contg.) C $\leq$ 10 divalent org. residue, O, COO, CO, SiZ2O, SiZ2, S, SO, SO2, NHCO; R = OH, NH2; Z = H, C $\leq$ 7 alkyl, arom. org. residue; m = 0-1; n = 0-3] with (C) aldehydes. Thus, biphenol 50, bisphenol A 49, 37% aq. HCHO 23.6, and oxalic acid dihydrate (I) 1 part were heated, refluxed with stirring for 30 min, mixed with 1 part I, and further refluxed for 1 h to give a phenolic resin (no.-av. mol. wt. 700), 45 parts of which was mixed with hexamethylenetetramine 7, Ca(OH)2 3, and CaCO3 45 parts, hot-press-molded, and post-cured to give a test piece having linear expansion coeff.  $1.6 + 10^{-5}/^{\circ}\text{C}$ , deflection temp. under load 200°, and melt viscosity 25 P.

IT **197503-26-7P**, Bisphenol A-2,6-dihydroxynaphthalene-formaldehyde copolymer  
(prepn. of heat-resistant phenolic resins with good heat resistance and fluidity)

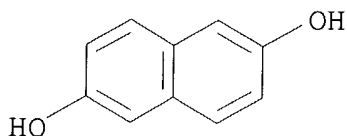
RN 197503-26-7 HCA

CN Formaldehyde, polymer with 4,4'-(1-methylethylidene)bis[phenol] and 2,6-naphthalenediol (9CI) (CA INDEX NAME)

CM 1

CRN 581-43-1

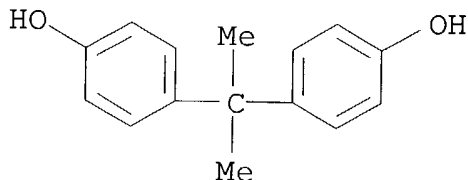
CMF C10 H8 O2



CM 2

CRN 80-05-7

CMF C15 H16 O2





CM 3

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$ 

IC ICM C08G008-04  
ICS C08G008-24

CC 37-3 (Plastics Manufacture and Processing)

IT 197503-24-5P, Bisphenol A-4,4'-dihydroxystilbene-formaldehyde copolymer 197503-25-6P **197503-26-7P**, Bisphenol A-2,6-dihydroxynaphthalene-formaldehyde copolymer 197520-17-5P (prepn. of heat-resistant phenolic resins with good heat resistance and fluidity)

L53 ANSWER 64 OF 178 HCA COPYRIGHT 2004 ACS on STN

122:328738 Laminate and multilayer printed circuit board. Nagai, Akira; Ogata, Masatsugu (Hitachi, Ltd., Japan). Eur. Pat. Appl. EP 642919 A1 19950315, 15 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1994-110617 19940707. PRIORITY: JP 1993-228445 19930914.

AB A laminate capable of mounting semiconductor elements comprises an insulating layer which is constituted by a resin portion of island structure and a woven reinforcement. The resin portion such that a resin as islands is dispersed in a resin as a matrix. Thus, the insulating layer exhibits a coeff. of thermal expansion of 3.0-10 ppm/K in a planar direction and a glass transition temp. of 150-300°. Owing to these phys. properties, thermal stresses which the laminate undergoes in packaging the semiconductor elements can be reduced, so that the connections of the laminate with the semiconductor elements can be made highly reliable.

IT **128192-20-1**, OCN 7000  
(multilayer printed circuit boards contg.)

RN 128192-20-1 HCA

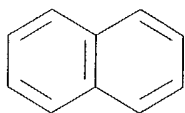
CN Formaldehyde, polymer with methylphenol and naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 1321-67-1

CMF C10 H8 O

CCI IDS



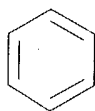
D1-OH

CM 2

CRN 1319-77-3

CMF C7 H8 O

CCI IDS



D1-OH

D1-Me

CM 3

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$ 

IC ICM B32B005-26

ICS H05K001-03; C08J005-24

CC 76-14 (Electric Phenomena)

Section cross-reference(s): 38

IT 13080-86-9, 2,2-Bis(4-(4-aminophenoxy)phenyl)propane 13676-54-5,

Bis(4-maleimidophenyl)methane 89118-70-7, YX 4000H 97917-34-5,

PS 513 103938-75-6, Epiclon EXA 1514 128192-20-1, OCN

7000

(multilayer printed circuit boards contg.)

L53 ANSWER 69 OF 178 HCA COPYRIGHT 2004 ACS on STN  
122:82361 Preparation of naphthol-modified phenolic resins with narrow molecular weight distribution. To, Haruaki; Nanaumi, Ken; Hagiwara, Shinsuke; Madarame, Takeshi (Hitachi Chemical Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 06211954 A2 19940802 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-180926 19910722.

AB The title phenolic resins with good heat resistance, useful as molding materials, curing agents for epoxy resins, etc., are prep'd. by treating 1 mol naphthols and  $\geq 2$  mol aldehydes in alc. or ketone solvents in the presence of alkali metal hydroxides at -10 to -30°, neutralizing with org. carboxylic acids, and treating the resulting methylol compds. of the naphthols with phenols in the presence of acids. Thus, treating 144 g 1-naphthol with 243 g 37% HCHO, neutralizing with AcOH, and treating the dimethylol compd. of 1-naphthol with p-cresol in the presence of HCl gave a phenolic resin with softening temp. 89°, mol. wt. distribution 1.25, and no. av. mol. wt. 403.

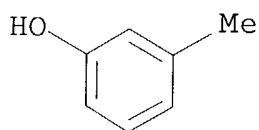
IT 87720-00-1P 97485-42-2P, p-Cresol-formaldehyde-1-naphthol copolymer 145566-36-5P, o-Cresol-formaldehyde-1-naphthol copolymer  
(prepn. of naphthol-modified phenolic resins with narrow mol. wt. distribution and good heat resistance)

RN 87720-00-1 HCA  
CN Formaldehyde, polymer with 3-methylphenol and 1-naphthalenol (9CI)  
(CA INDEX NAME)

CM 1

CRN 108-39-4

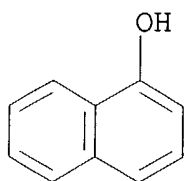
CMF C7 H8 O



CM 2

CRN 90-15-3

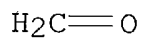
CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



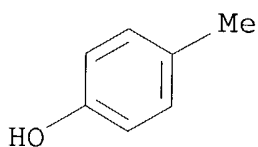
RN 97485-42-2 HCA

CN Formaldehyde, polymer with 4-methylphenol and 1-naphthalenol (9CI)  
(CA INDEX NAME)

CM 1

CRN 106-44-5

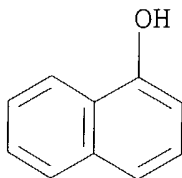
CMF C7 H8 O



CM 2

CRN 90-15-3

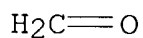
CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



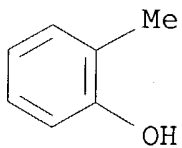
RN 145566-36-5 HCA

CN Formaldehyde, polymer with 2-methylphenol and 1-naphthalenol (9CI)  
(CA INDEX NAME)

CM 1

CRN 95-48-7

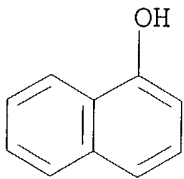
CMF C7 H8 O



CM 2

CRN 90-15-3

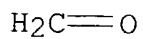
CMF C10 H8 O



CM 3

CRN 50-00-0

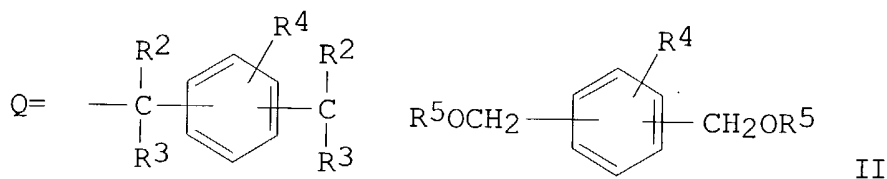
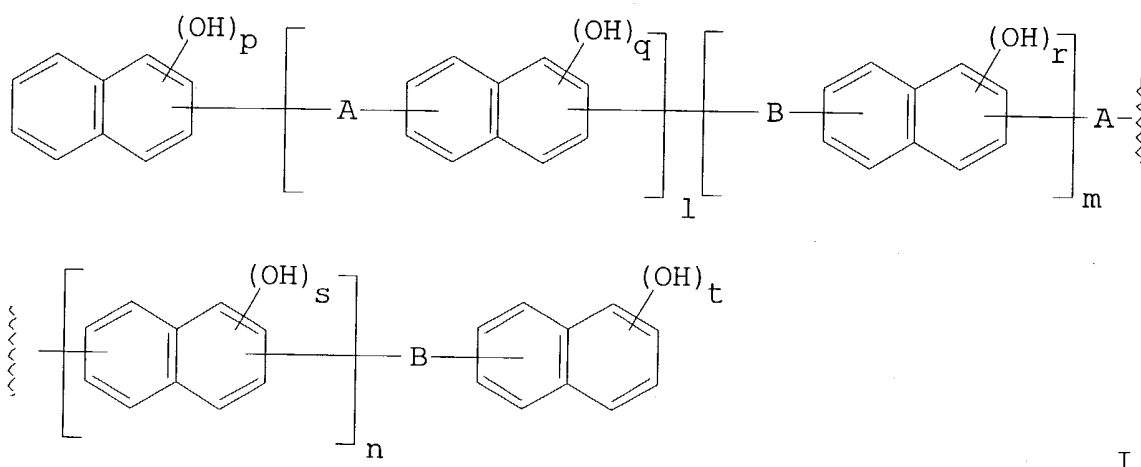
CMF C H2 O



IC ICM C08G008-28  
 CC 35-5 (Chemistry of Synthetic High Polymers)  
 IT **87720-00-1P 97485-42-2P**, p-Cresol-formaldehyde-1-naphthol copolymer **145566-36-5P**, o-Cresol-formaldehyde-1-naphthol copolymer  
 (prepn. of naphthol-modified phenolic resins with narrow mol. wt. distribution and good heat resistance)

L53 ANSWER 93 OF 178 HCA COPYRIGHT 2004 ACS on STN  
 120:78918 Semiconductor sealing compositions. Kaji, Masashi; Miwa, Hiroshi; Aramaki, Takanori; Tauchi, Shigeaki (Shinnittetsu Kagaku, Japan). Jpn. Kokai Tokkyo Koho JP 05109934 A2 19930430 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-296446 19911016.

GI



AB The title compns. with good solder heat resistance and low moisture absorption comprise polyfunctional epoxy compds., hardeners, curing accelerators, and inorg. fillers, wherein the hardeners contain naphthol novolaks I (A, B = -CHR1-, Q, excluding A = B; R1-3 = H, Me; R4 = H, OH, Me; l, m, n = 0-10, excluding l = n = 0; p-t = 1, 2) or novolaks from 1- and/or 2-naphthol and II (R4 as defined above;

R5 = H, C1-6 hydrocarbyl). A crack-resistant potting was formed from o-cresol novolak epoxy resin 71, 2-naphthol-p-xylylene glycol copolymer 49, fused silica powder 450, silane coupler 2, Ph3P 1, carbon black 2, and carnauba wax 2 parts.

IT 152220-70-7P

(manuf. of, for hardeners for epoxy potting compns.)

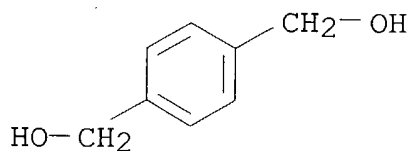
RN 152220-70-7 HCA

CN Formaldehyde, polymer with 1,4-benzenedimethanol and 2-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 589-29-7

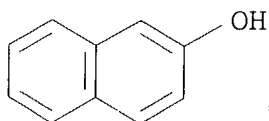
CMF C8 H10 O2



CM 2

CRN 135-19-3

CMF C10 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



IC ICM H01L023-29

ICS H01L023-31; C08G059-40

CC 38-3 (Plastics Fabrication and Uses)

IT 113601-85-7P 113601-86-8P 134118-69-7P 152220-70-7P  
(manuf. of, for hardeners for epoxy potting compns.)

L53 ANSWER 127 OF 178 HCA COPYRIGHT 2004 ACS on STN

118:148731 Phenol novolak compounds and resins for potting and molding compositions and laminates. Murata, Kazuyuki; Morita, Hiromi; Kimura, Ichiro; Nagao, Susumu; Mogi, Shigeru (Nippon Kayaku Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 04220413 A2 19920811 Heisei, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-411946 19901220.

AB Dimethylolphenols react with naphthols in the presence of acid catalysts to prep. the title compds., and their epoxy derivs. are prepd. An o-cresol-HCHO-2-methyl-1-naphthol reaction product was prepd., mixed (141 parts) with 200 parts EOCN 1020 and 2 parts 2-methylimidazole and cured to give a molding having heat distortion temp. 194° and water absorption 1.3%.

IT 146689-00-1

(hardeners, for epoxy resins)

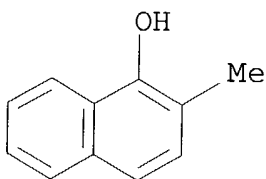
RN 146689-00-1 HCA

CN Formaldehyde, polymer with 2-methyl-1-naphthalenol and 2-methylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 7469-77-4

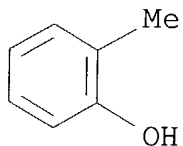
CMF C11 H10 O



CM 2

CRN 95-48-7

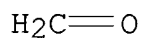
CMF C7 H8 O



CM 3



CRN 50-00-0  
CMF C H2 O



IT 146689-00-1DP, reaction products with epichlorohydrin,  
polymers

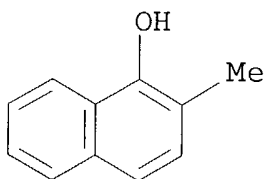
(prepn. of, for moldings)

RN 146689-00-1 HCA

CN Formaldehyde, polymer with 2-methyl-1-naphthalenol and  
2-methylphenol (9CI) (CA INDEX NAME)

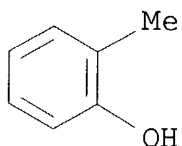
CM 1

CRN 7469-77-4  
CMF C11 H10 O



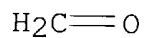
CM 2

CRN 95-48-7  
CMF C7 H8 O



CM 3

CRN 50-00-0  
CMF C H2 O



IC ICM C08G008-24  
ICS C07C037-20; C07C037-74; C07C039-12; C07D301-28; C07D303-22;  
C08G059-08

CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 38

IT 9003-35-4, Formaldehyde-phenol copolymer **146689-00-1**  
(hardeners, for epoxy resins)

IT 106-89-8DP, reaction products with cresol-formaldehyde-  
methylnaphthol copolymers **146689-00-1DP**, reaction products  
with epichlorohydrin, polymers 146689-01-2P  
(prepn. of, for moldings)

L53 ANSWER 128 OF 178 HCA COPYRIGHT 2004 ACS on STN

118:148702 Producing naphthol-modified phenolic resins. Sue, Haruaki;  
Nanaumi, Ken; Itou, Takuji; Madarame, Ken; Hagiwara, Shinsuke  
(Hitachi Chemical Co., Ltd., Japan). Eur. Pat. Appl. EP 512519 A2  
19921111, 6 pp. DESIGNATED STATES: R: DE, FR, GB, NL. (English).  
CODEN: EPXXDW. APPLICATION: EP 1992-107658 19920506. PRIORITY: JP  
1991-101152 19910507; JP 1991-101153 19910507.

AB Gel-free, high-mol.-wt. title resins are manufd. by polymn. of HCHO  
with 5-95 mol% each of a phenol and a naphthol in the presence of an  
acid and a metal at HCHO/(phenol + naphthol) 0.5-2.0 (mol). Thus,  
polymn. of 1-naphthol 72, phenol 423, and 37% HCHO 323 g in the  
presence of Al powder and oxalic acid gave a solid resin with  
no.-av. mol. wt. 904.

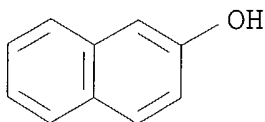
IT **37604-38-9P**, Formaldehyde-2-naphthol-phenol copolymer  
**110634-63-4P**  
(manuf. of gel-free high-mol.-wt., catalysts for)

RN 37604-38-9 HCA

CN Formaldehyde, polymer with 2-naphthalenol and phenol (9CI) (CA  
INDEX NAME)

CM 1

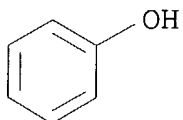
CRN 135-19-3  
CMF C10 H8 O



CM 2

CRN 108-95-2

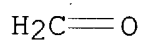
CMF C6 H6 O



CM 3

CRN 50-00-0

CMF C H2 O



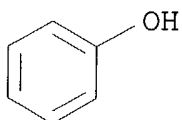
RN 110634-63-4 HCA

CN Formaldehyde, polymer with 1-naphthalenol and phenol (9CI) (CA INDEX NAME)

CM 1

CRN 108-95-2

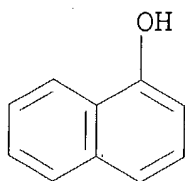
CMF C6 H6 O



CM 2

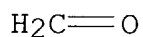
CRN 90-15-3

CMF C10 H8 O



CM 3

CRN 50-00-0  
CMF C H2 O



IC ICM C08G008-08  
CC 37-3 (Plastics Manufacture and Processing)  
IT **37604-38-9P**, Formaldehyde-2-naphthol-phenol copolymer  
**110634-63-4P**  
(manuf. of gel-free high-mol.-wt., catalysts for)

L53 ANSWER 131 OF 178 HCA COPYRIGHT 2004 ACS on STN  
118:114917 Packaging materials for semiconductor devices. Tanigawa,  
Satoshi; Saito, Kiyoshi (Nitto Denko Corp., Japan). Jpn. Kokai  
Tokkyo Koho JP 04199857 A2 19920721 Heisei, 10 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 1990-336632 19901129.

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The title material contains polyglycidyls (I, II: X = H, Me; R =  
glycidyl; a, c = 0-50; b, d = 1-50; C, D = RC6H4), phenol derivs.  
(III, IV: X = H, Me; a, c = 0-50; b, d = 1-50), and an inorg.  
filler. The packaging material has an increased heat and moisture  
resistances.

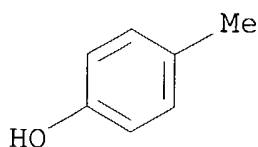
IT **97485-42-2D**, glycidyl ether **141111-12-8D**, novolak  
epoxy resins  
(packaging material contg., for semiconductor devices)

RN 97485-42-2 HCA

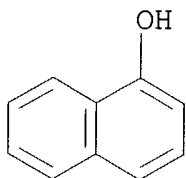
CN Formaldehyde, polymer with 4-methylphenol and 1-naphthalenol (9CI)  
(CA INDEX NAME)

CM 1

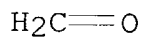
CRN 106-44-5  
CMF C7 H8 O



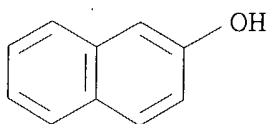
CM 2

CRN 90-15-3  
CMF C10 H8 O

CM 3

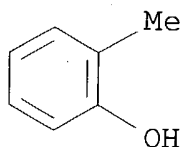
CRN 50-00-0  
CMF C H2 ORN 141111-12-8 HCA  
CN Formaldehyde, polymer with 2-methylphenol and 2-naphthalenol (9CI)  
(CA INDEX NAME)

CM 1

CRN 135-19-3  
CMF C10 H8 O

CM 2

CRN 95-48-7  
CMF C7 H8 O



CM 3

CRN 50-00-0

CMF C H2 O

 $\text{H}_2\text{C}=\text{O}$ 

IC ICM H01L023-29

ICS C08G059-24; C08G059-62; C08L063-00; H01L023-31

CC 76-14 (Electric Phenomena)

Section cross-reference(s): 38

IT 581-43-1D, 2,6-Naphthalenediol, phenolic epoxy resins

**97485-42-2D**, glycidyl ether **141111-12-8D**, novolak

epoxy resins

(packaging material contg., for semiconductor devices)

L53 ANSWER 157 OF 178 HCA COPYRIGHT 2004 ACS on STN

100:104439 Naphthol novolak resin blend. Taylor, Paul; Gulla, Michael  
(Shipley Co., Inc., USA). U.S. US 4424315 A 19840103, 4 pp.  
(English). CODEN: USXXAM. APPLICATION: US 1982-422310 19820920.AB Blends useful in moldings and films contain novolaks and naphthol  
resins. Thus, a 1:1 m-cresol-p-cresol-1-naphthol-HCHO resin [ **87719-97-9**]-PhOH-HCHO novolak [9003-35-4] blend, prepd.  
from solns. in a common solvent (e.g. EtOCH<sub>2</sub>CH<sub>2</sub>OAc), could be cast  
to a homogeneous film.IT **87719-97-9** **87719-98-0** **87719-99-1****87720-00-1**

(blends with phenolic novolaks, for moldings and films)

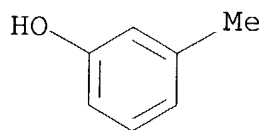
RN 87719-97-9 HCA

CN Formaldehyde, polymer with 2-methylphenol, 3-methylphenol and  
1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

CRN 108-39-4

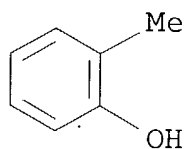
CMF C7 H8 O



CM 2

CRN 95-48-7

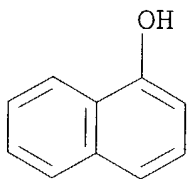
CMF C7 H8 O



CM 3

CRN 90-15-3

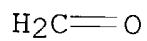
CMF C10 H8 O



CM 4

CRN 50-00-0

CMF C H2 O

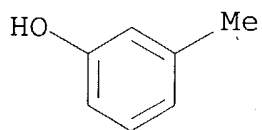


RN 87719-98-0 HCA

CN Formaldehyde, polymer with 4-(1,1-dimethylethyl)phenol,  
3-methylphenol and 1-naphthalenol (9CI) (CA INDEX NAME)

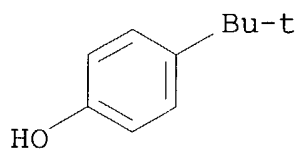
CM 1

CRN 108-39-4  
CMF C7 H8 O



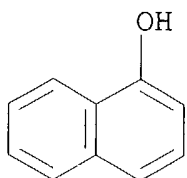
CM 2

CRN 98-54-4  
CMF C10 H14 O



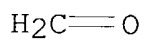
CM 3

CRN 90-15-3  
CMF C10 H8 O



CM 4

CRN 50-00-0  
CMF C H2 O



RN 87719-99-1 HCA  
CN Formaldehyde, polymer with 3-methylphenol and 2-naphthalenol (9CI)

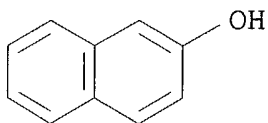


(CA INDEX NAME)

CM 1

CRN 135-19-3

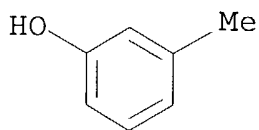
CMF C10 H8 O



CM 2

CRN 108-39-4

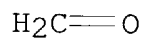
CMF C7 H8 O



CM 3

CRN 50-00-0

CMF C H2 O



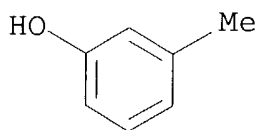
RN 87720-00-1 HCA

CN Formaldehyde, polymer with 3-methylphenol and 1-naphthalenol (9CI)  
(CA INDEX NAME)

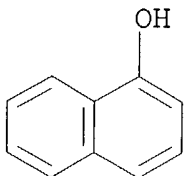
CM 1

CRN 108-39-4

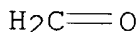
CMF C7 H8 O



CM 2

CRN 90-15-3  
CMF C10 H8 O

CM 3

CRN 50-00-0  
CMF C H2 O

IC C08L061-10  
NCL 525501000  
CC 37-3 (Plastics Manufacture and Processing)  
IT 87719-97-9 87719-98-0 87719-99-1  
87720-00-1  
(blends with phenolic novolaks, for moldings and films)

L53 ANSWER 176 OF 178 HCA COPYRIGHT 2004 ACS on STN

70:29648 Thermosetting copolymers of phenol and its derivatives with formaldehyde. Sergeev, V. A.; Korshak, V. V.; Shitikov, V. K. (Inst. Elementoorg. Soedin., Moscow, USSR). Vysokomolekulyarnye Soedineniya, Seriya A, 10(10), 2304-9 (Russian) 1968. CODEN: VYSAAF. ISSN: 0507-5475.

AB Co-polymers were prepd. from PhOH, H<sub>2</sub>CO, and phenolphthalein, fluorescein, o-cresolphthalein, α-naphtholphthalein, rosolic acid, aurin, and (or) dihydroxybiphenyl using NH<sub>3</sub> as the catalyst, followed by thermal processing at 160-80° to give insol. polymers, which carbonize at .apprx.900°. CO and CH<sub>2</sub> groups of phenols took part in the polycondensation. The thermal stability of copolymers of phenolphthalein with p-, m-cresol, and (or) tricresol and H<sub>2</sub>CO was detd. The copolymers were stable at ≤600°. The properties of copolymers of methylolphenolphthalein and 2,6-bis (hydroxymethyl)-p-cresol (I) prepd. at various component ratios and of a copolymer of

dihydroxybiphenyl and I were studied by thermogravimetry. No decrease in carbonized-polymer yield was observed due to a decrease in the crosslinking degree of the copolymers when  $\leq 50\%$  p-substituted phenols were used in the reaction.

IT 27555-69-7, properties  
(thermal)

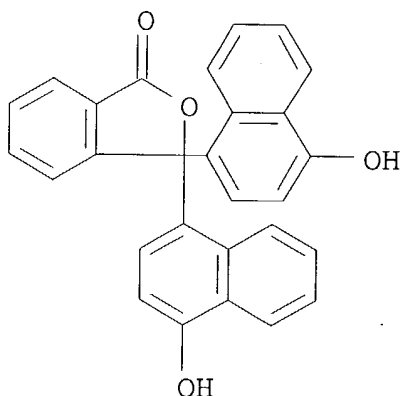
RN 27555-69-7 HCA

CN Formaldehyde, polymer with 3,3-bis(4-hydroxy-1-naphthalenyl)-1(3H)-isobenzofuranone and phenol (9CI) (CA INDEX NAME)

CM 1

CRN 596-01-0

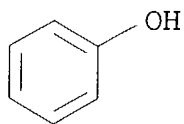
CMF C28 H18 O4



CM 2

CRN 108-95-2

CMF C6 H6 O



CM 3

CRN 50-00-0

CMF C H2 O

H<sub>2</sub>C=O

(thermal properties of  
CC 36 (Plastics Manufacture and Processing)  
IT 26700-64-1, properties 27555-67-5, properties 27555-68-6,  
properties **27555-69-7**, properties 27555-70-0, properties  
27555-73-3, properties  
(thermal)-  
IT 26700-64-1 27555-67-5 27555-68-6 **27555-69-7**  
27555-70-0 27555-71-1 27555-72-2 27555-73-3  
(thermal properties of)